WHO/CDS/NTD/2007.4

ANNUAL REPORT 2006
NEGLECTED TROPICAL DISEASES

World Health Organization

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Contents

MESSAGE FROM DIRECTOR

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Neglected tropical diseases have afflicted humanity since time immemorial.
Today, neglected tropical diseases are a symptom of poverty and disadvantage. Those most affected are the poorest populations often living in remote, rural areas, urban slums or in conflict zones. With little political voice, neglected tropical diseases have a low profile and status in public health priorities. Stigma attached to these diseases has hampered efforts to bring them out of the shadows.

Conditions of poverty perpetuate these diseases, while the health impact of these diseases perpetuates poverty.

Our challenges are great, but so is our determination to work together to find solutions and achieve results. The year of 2006 witnessed important achievements in the history of the fight against neglected tropical diseases.

First, a major step was to view neglected tropical diseases as a group.
WHO and its partners developed a conceptual framework to move away from a purely disease-centred approach to an integrated one tackling selected neglected tropical diseases as a group.
WHO has taken this agenda forward promoting a three pronged approach: broader coverage with rapid-impact interventions (especially against helminth infections), strengthened vector control to reduce transmission of several diseases, and improved surveillance and high-quality care of diseases such as buruli ulcer, Chagas disease, leishmaniasis and sleeping sickness. WHO also addresses the particularities and obstacles of neglected tropical disease control in humanitarian emergencies, where mortality and morbidity are higher than usual. Research and development, including operational research, underpin activities in all areas.
When these diseases are viewed together, we gain critical mass. We get a better grip on the scale of the economic and social as well as the health burdens. As yet another advantage, grouping these diseases together creates opportunities for the sharing of innovative solutions, especially as most control programmes face similar operational constraints.

Second is the availability of safe and highly effective drugs – the best drugs the world can offer. In a most welcome trend, public-private partnerships have formed to combat these diseases. Some of these partnership agreements provide for the donation of drugs wherever needed, in whatever quantity, as long as it takes to reach targets.
Evidence has shown that a package of a few anthelminthic drugs is able to bring relief for over 15 types of helminthic and parasitic infections. Available drugs are so safe and effective that they can be administered pre-emptively to almost all at-risk populations.

As the most recent step forward, WHO has developed strategies for the integrated delivery of interventions for several overlapping diseases. Since neglected tropical diseases frequently cluster geographically and overlap, systems created to deliver one intervention can be used to deliver others.

While important constraints remain, the prospects for controlling some of the most burdensome neglected diseases, on a large scale and in sustainable ways, have never looked better.

We now need to urgently work together with endemic countries and the international community to improve neglected communities' access to the rapid-impact interventions and quality care to protect them from neglected tropical diseases and to ensure their human and social development. The need to do so is incontestable from all perspectives: moral, human rights, economic and global public good.

The first WHO annual report on NTDs highlights the high burden and socio economic impact of these diseases in the world. More importantly, it shows the magnitude of the efforts undertaken by thousands dedicated workers, communities and partners in fighting disease and poverty. The achievements are so impressive that they deserve to be widely publicized. Challenges are enormous, but so is our commitment to make NTDs history.

ACKNOWLEDGEMENTS

The annual report is the result of hard work and dedication of people from different parts of the world.
Achievements made were possible thanks to health ministries of member countries, partners, pharmaceutical companies, donors, non-governmental organizations, experts in neglected tropical diseases and WHO colleagues in countries and regional offices.

Special thanks are extended to those who contributed to development of this document.

HIGHLIGHT IN 2006

Worldwide coverage and potential

By January 2006, 57 million school children and 48 million pre-school children treated for soil-transmitted helminthiasis.

More than 220 000 people were benefited from Multi drug therapy against leprosy free of charge

100% of sleeping sickness patients were treated free of charge in 18 endemic countries

In May, Executive Board of WHO launched the first resolution for the control of leishmaniasis, EB 118. R3.

Local success

India declared elimination of yaws

Sri Lanka completed five rounds of mass drug administration against lymphatic filariasis protecting 9.8 million people at risk

Mass drug administration against lymphatic filariasis dropped prevalence rate of the disease below 1% achieving interruption of transmission in the United Republic of Tanzania

French Polynesia completed 7th round of mass drug administration again lymphatic filariasis reaching 97% of the whole population.

Co-administration of albendazole, ivermectin and praziquantel for the respective treatment of soil-transmitted helminthiasis, lymphatic filariasis/onchocerciasis and schistosomiasis was safely and successfully introduced into national control programmes in Zanzibar and Nigeria.

Bhutan and the Maldives surpassed the target of 75% coverage of the at risk populations of soil-transmitted helminthiasis.

More than 75% of the at risk populations were treated for both soil-transmitted helminthiasis and schistosomiasis in Burkina Faso and Cambodia.

Cambodia, Egypt and Morocco reduced the levels of schistosomiasis prevalence such that it is no longer considered a public health problem.

Meeting

In December 2006, the department convened a global meeting to review progress towards meeting the target of the WHA resolution 54.19 on deworming people at risk of morbidity due to schistosomiasis and soil-transmitted helminthiasis.

On 25-26 September 2006 the 5th Global Collaboration for Development of Pesticides for Public Health (GCDPP) took place to propose the foundation and strategies for WHO strengthening of its support to Member States on sound management of pesticides.

Key publication

In March 2006, several key documents were published including 'Guidelines for testing mosquito adulticides for indoor residual spraying and treatment of mosquito nets' that serves as a reference document for national programmes.

In October a manual for health professional and programme managers, 'Preventive chemotherapy in Human Helminthiasis', was launched to guide the coordinated implementation of regular, systematic, large/scale interventions.

Partnership

On 6 February 2006, the Foundation for Innovative New Diagnostics (FIND) and the World Health Organization (WHO) signed Memorandum of Understanding for the development and evaluation of new diagnostic tests for human African trypanosomiasis with a grant from the Bill & Melinda Gates Foundation.

Related to control of vector born diseases, the WHO Pesticide Evaluation Scheme (WHOPES) finalized the testing and evaluation of 5 pesticide products for public health use and developed, in collaboration with FAO, quality standards for 11 public health pesticide products.

NTD further expanded its collaboration with FAO and UNEP on issues related to management of public health pesticides and prepared groundwork for Memorandum of Understanding with FAO.

On 10 October 2006 sanofi-aventis signed a five year agreement to support the fight against human African trypanosomiasis, leishmaniasis, buruli ulcer and Chagas disease donating a total of US$ 25 million.

In November 2006, Novartis agreed to donate 600 000 tables of triclabendazole for fascioliasis to WHO for the period of 2007-2009.

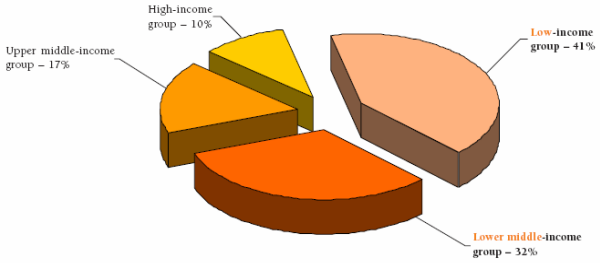
PART 1. MAGNITUDE OF NEGLECTED TROPICAL DISEASES

Neglected tropical diseases have afflicted humanity since time immemorial and, in their long histories, have acquired notoriety as disabling and deforming diseases. In the past, their serious impact on health and productivity led to considerable knowledge about the diseases, and effective control tools were developed for many. In addition, as living conditions improved, opportunities for transmission were drastically reduced. As a result, these diseases are now rarely seen in populations that enjoy good access to health services and a reasonable standard of living.

These diseases flourish in areas where water supply and sanitation are inadequate, nutrition is poor, literacy rates are low, health systems are rudimentary, and insects and other disease vectors are constant household and occupational companions. Not surprisingly, these diseases cluster together and frequently overlap wherever such conditions occur. In fact, the link with poverty is so strong that the prevalence of these diseases can serve as a proxy indicator of the level of a country's socioeconomic development.

100% of low-income countries are affected by at least five neglected tropical diseases simultaneously.
Neglected tropical diseases are a devastating obstacle to human settlement and socioeconomic development of already impoverished countries.

Figure 1. Countries affected by neglected tropical diseases by income group



At least 1 billion people – one-sixth of the world population – currently suffer from one or more of these diseases.
More than 40 million people are permanently incapacitated and disfigured by lymphatic filariasis. In Africa alone, schistosomiasis affects at least 160 million people. Of these, at least 30 million suffer permanent, life-threatening complications.

Most neglected tropical diseases cause immense suffering and often life-long disabilities but rarely kill. Therefore, they do not receive the attention and funding of high-mortality diseases like AIDS, tuberculosis, and malaria.
However, the price of neglect is too high; neglected tropical diseases have consequences for affected individuals, families and entire communities in terms of burden of disease, quality of life, loss of productivity and aggravation of poverty.

Neglected diseases impose an enormous economic burden in terms of lost productivity and the high costs of long-term care. Occurring as they do in rural areas, they can jeopardize food security and cause dramatic changes in patterns of land use. When

surgery is required for treatment or rehabilitation, the costs are often beyond the reach of endemic countries. The disabled remain disabled, often in their youth.

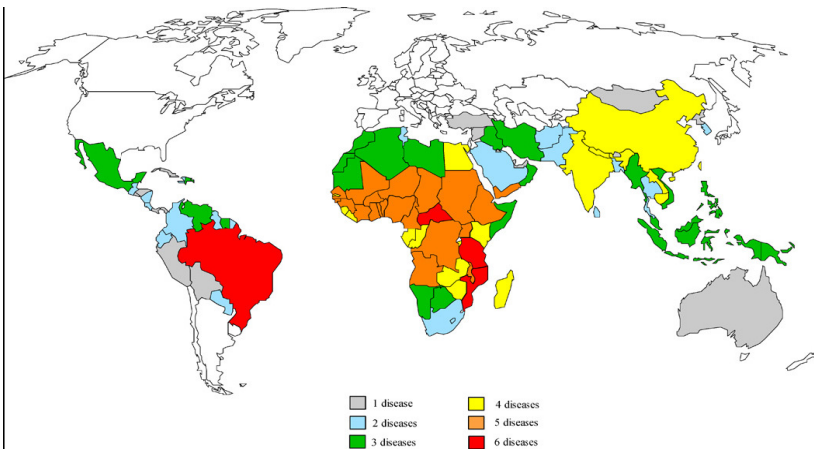
Neglected diseases can help guarantee that the next generation remains anchored in poverty. Schistosomiasis and guinea worm disease have a significant negative impact on school attendance. Sleeping sickness can permanently impair mental functions, and may cause mental retardation, even in children who are cured. Buruli ulcer takes its heaviest toll in lost limbs and crippling deformities in the young.

For a large group of these diseases such as leprosy, filariasis, onchocerciasis, trachoma, schistosomiasis and soil-transmitted helminthiasis and yaws effective, inexpensive or donated drugs are available for their prevention and control. These tools, when used on a large scale, are able to wipe out the burden caused by these ancient scourges of humanity. Large-scale, regular treatment plays a central role in the control of helminthic infections. For example, preventive chemotherapy against intestinal worms reduces mortality and morbidity in preschool children, improves the nutritional status and academic performance of schoolchildren, and improves the health and well-being of pregnant women and their babies.

There is second group of NTDs for which the only clinical option currently available is systematic case-finding and management at an early stage. These diseases include Buruli ulcer, Chagas disease, cholera and other diarrhoeal diseases, human African trypanosomiasis and leishmaniasis. Simple diagnostic tools and safe and effective treatment regimens need to be developed urgently for some of these diseases. However, even for these infections, systematic use of the present, imperfect tools at an early stage can dramatically reduce mortality and morbidity. For others, vector control tools are available and present the main method of transmission control, as in the case of Chagas disease.

Although medically diverse, neglected tropical diseases share several characteristics. They are almost exclusively concentrated in populations of the poor and powerless. Moreover, neglected diseases frequently exist, and often overlap, in remote rural areas or urban slums which even the most rudimentary health services fail to reach.

Map 1. Overlapping threats to neglected populations



Neglect of these diseases occurs at three main levels. At the national level, these diseases are hidden in remote areas and are poorly documented.
They are hidden for a second reason: stigma. Stigma keeps people –especially women – out of sight. It also discourages people from seeking care early in the disease course, when the chances of cure are greatest.
Second, neglected diseases lack visibility at the international level. Tied as they are to specific geographical and environmental conditions, they do not travel. They impair or permanently disable millions of people, but cause comparatively few deaths.
Third, these diseases have long been neglected by research and development. Industry has little incentive to develop drugs and vaccines for markets that cannot pay.
When inexpensive and effective drugs already exist and are available, delivery fails because patients cannot pay and because health systems are weak or non-existent

PART 2. WHO ACTIVITIES AND ACHIEVEMENTS

The year saw the launch of synergistic strategies, whereby neglected tropical diseases with similar operational demands are now being tackled in an integrated way.

WHO has developed the conceptual framework moving from a purely disease centred approach to an integrated once tackling some neglected tropical diseases as a group launching the new Department of Control of Neglected Tropical Diseases (WHO/NTD). This makes practical sense in operational and strategic terms.
WHO NTD strengthened its staffing at HQ and further invested in promotion of IVM and through close collaboration and support to several WHO Regions on inter-country and country-specific activities.

Associated as they are with extreme poverty, these diseases share common determinants and must overcome similar obstacles to control. It thus makes sense, in an action-based strategy, to group the diseases according to shared operational and programmatic needs.
Preventive chemotherapy is at the heart of this new strategy, which was launched with the support of more than 25 partner organizations. A package of just a few anthelminthic drugs – albendazole or/and mebendazole, praziquantel, ivermectin or diethylcarbamazine – is able to bring relief for over 15 types of helminthic and parasitic infections. Some of these drugs are donated on a large scale by the pharmaceutical industries and therefore widely accessible.

Low-cost and innovative delivery systems have also been devised. The new streamlined approach provides a critical first step in combining treatment regimens for diseases that, although medically diverse, have interventions with similar operational demands and that benefit from shared delivery systems.

For other neglected tropical diseases, including human African trypanosomiasis (sleeping sickness), leishmaniasis, Chagas disease, and Buruli ulcer, the main focus is on innovative diagnostic tools and treatments. Key control tools will drastically alter current control strategies and guarantee ethical, cost-effective and sustainable control, aimed at eliminating some of the most difficult neglected tropical diseases.
In February, WHO and the Foundation for Innovative Diagnostics, with a grant from the Bill and Melinda Gates Foundation, announced the start of work to develop and evaluate new diagnostic tests for sleeping sickness, a disease that is invariably fatal if not detected and treated early in the course of infection. Existing tests are cumbersome and difficult to implement in remote, impoverished settings where cases of the disease occur.
Further support came in October when the pharmaceutical manufacturer, sanofi-aventis, announced the donation of medicines for sleeping sickness and direct financial support for the control of this disease, leishmaniasis, Chagas disease, and Buruli ulcer.

Drug donation is a striking feature of public-private partnerships. In a most welcome trend, industry is donating high-quality drugs in great quantities for treatment of neglected tropical diseases as shown in Table 1.

Table 1. List of donated medicines and contact points for obtaining medicines

Medicine	Donation	Contact point for obtaining
Albendazole	Unlimited quantity from GlaxoSmithKline for lymphatic filariasis only (not for soil-transmitted helminthiasis)	For medicines, please contact the WHO Representative. For information and technical assistance, please contact: Dr Gautam Biswas Department of Neglected Tropical Diseases World Health Organization CH-1211 Geneva 27, Switzerland E-mail: biswasg@who.int Tel: +41 22 791 3850
Eflornithine	Unlimited quantity by 2012 from sanofi-aventis for human African trypanosomiasis	Dr Jean Jannin/Dr Perez Simarro Department of Neglected Tropical Diseases World Health Organization CH-1211 Geneva 27, Switzerland E-mail: janninj@who.int/simarrop@who.int Tel: + 41 22 791 3779/1345
Ivermectin	Directly to countries from Merck & Co Inc. for lymphatic filariasis and onchocerciasis	Mectizan® Donation Program 750 Commerce Drive, Suite 400 Decatur, GA 30030, USA E-mail: mectizan@taskforce.org Tel: +1 404 371 1460 Fax: +1 404 371 1138
MDT and Clofazimine	Unlimited quantity for leprosy and its complications from Novartis	Dr Denis Daumerie Department of Neglected Tropical Diseases World Health Organization CH-1211 Geneva 27, Switzerland E-mail: daumeried@who.int Tel: +41 22 791 3919
Mebendazole	50 million tablets in 2007 from Johnson & Johnson for Soil-transmitted helminths control programmes for children	Nana A.Y. Twum-Danso Mebendazole Donation Program & Associate Director Mectizan Donation Program 750 Commerce Drive, Suite 400 Decatur, GA 30030, USA E-mail: ntwumdanso@taskforce.org Tel: +1 404 687 5623 Child Survival Task Force
Melarsoprol	Unlimited quantity by 2012 from sanofi-aventis for human African trypanosomiasis	Dr Jean Jannin/Dr Perez Simarro Department of Neglected Tropical Diseases World Health Organization CH-1211 Geneva 27, Switzerland E-mail: janninj@who.int/simarrop@who.int Tel: +41 22 791 3779/1345
Nifurtimox	500 000 tablets (120 mg) per year by 2012 from Bayer for treatment of Chagas disease	Dr Jean Jannin Department of Neglected Tropical Diseases World Health Organization CH 1211 Geneva 27, Switzerland E-mail: janninj@who.int Tel: +41 22 791 3779
Pentamidine	Unlimited quantity by 2012 from sanofi-aventis for human African trypanosomiasis	Dr Jean Jannin/Dr Perez Simarro Department of Neglected Tropical Diseases World Health Organization CH-1211 Geneva 27, Switzerland E-mail: janninj@who.int/simarrop@who.int Tel: +41 22 791 3779/1345

Praziquantel	200 million tablets 2008-2017 from Merck KGaA for Schistosomiasis	Dr Dirk Engels Department of Neglected Tropical Diseases World Health Organization CH-1211 Geneva 27, Switzerland E-mail:engelsd@who.int
Suramine	Unlimited quantity by 2012 from Bayer for human African trypanosomiasis	Dr Jean Jannin/Dr Perez Simarro Department of Neglected Tropical Diseases World Health Organization CH-1211 Geneva 27, Switzerland E-mail: janninj@who.int/simarrop@who.int Tel: +41 22 791 3779/1345
Triclabendazole	600 000 tablets 2007-2009 from Novartis for fascioliasis	Dr Dirk Engels Department of Neglected Tropical Diseases World Health Organization CH-1211 Geneva 27, Switzerland E-mail:engelsd@who.int

Since the list of NTDs is not exhaustive and has regional and national variations, prioritization of diseases is needed and appropriate strategy should be developed.
Some diseases can be tackled by a multi intervention package on a large scale and others require intensified actions in focus areas.
In October 2006 WHO department of Control of Neglected Tropical Diseases in Headquarter arranged a meeting with its Regional focal points to address these issues.
Each WHO regional office has defined its own prioritized list (see table 2).

Table 2. Regional peculiarities and priorities

REGION	FOCUS DISEASES IN 2006
AFRO *Source: AFRO work plan 2006-2007 [DDC/CPC]*	▪ Buruli ulcer ▪ Guinea worm ▪ HAT ▪ Leishmaniasis ▪ Leprosy ▪ LF ▪ Loa-Loa ▪ Onchocerciasis ▪ Schistosomiasis ▪ STH
EMRO *Source: EMRO NTD control intercountry work plan 2006-2007*	▪ Guinea worm ▪ HAT ▪ Leishmaniasis ▪ Leprosy ▪ LF ▪ Schistosomiasis and Intestinal Parasitic infections (SIP) ▪ ZCL ▪ Zoonotic diseases (brucellosis, rabies, hydatidosis)
PAHO *Source: Regional Strategic Framework for Prevention and Control of ND in Neglected population in Latin America and the Caribbean 2006-2020*	▪ Chagas disease ▪ Dengue ▪ Echinococcus/ Hydatid ▪ Fascioliasis ▪ Hookworm infection ▪ Leishmaniasis ▪ Leprosy ▪ Lymphatic filariasis ▪ Onchocerciasis ▪ Other STH infections ▪ Schistosomiasis ▪ Taeniasis/ Cysticercosis ▪ Trachoma
SEARO *Source: SEARO work plan 2006-2007 [communicable disease prevention and control]*	▪ Dengue(dengue haemorrhagic fever ▪ Human rabies (70% of global death) and other zoonoses ▪ Intestinal parasitoses ▪ Japanese encephalaliis ▪ Kala Azar (20% of global cases) ▪ Leishmaniasis ▪ Leprosy (75% of the global cases) ▪ LF (50% of global cases) ▪ Trachoma and leptospirosis ▪ Yaws
WPRO *WPRO work plan 2006-2007*	▪ Control of malaria, other vector borne and parasitic diseases in Cambodia ▪ Dengue and DHF control and management ▪ Foodborne trematodes ▪ Leprosy ▪ LF ▪ SCH ▪ STH ▪ Zoonotic diseases

REGIONAL OFFICE FOR AFRICA

<To insert AFRO map and list of member countries >

Africa is one of the most seriously hit continents by neglected tropical diseases. People living in the African Region are more exposed to a heavy and wideranging burden of disease partly because of this Region's unique geography and climate. The population of the African Region represents about 10% of the world's population, but an estimated 45% or more of its people live below the poverty line, on less than US$ 1 a day. Poverty is a major factor determining ill-health, as well as being both a cause and an outcome of ill-health.

Control of neglected tropical diseases will invigorate the population in Africa to take charge of their own health, promote economic productivity and improve their lives.

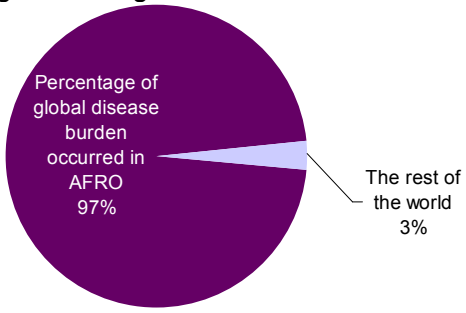
Table3: Magnitude of NTDs in WHO African Region

Magnitude	BU	GW	LESH	HAT	Leprosy	SCH	STH	LF
	Number of reported cases					Estimated pop at risk (million)		
Number of reported cases	**42,852**	***4628***	**22,281**	**14509**	**44,544**	**170**	**400**	**420**

BURULI ULCER

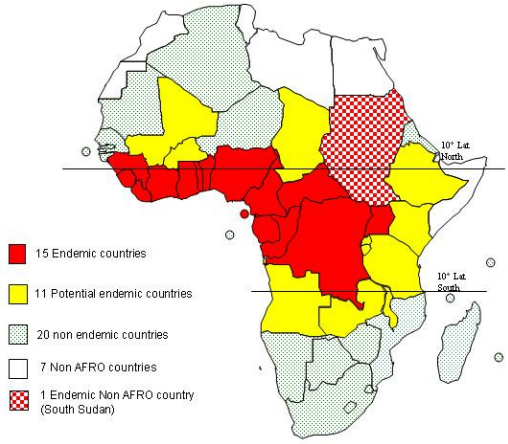
With more than 90% of reported new cases of the disease, the WHO African Region is the most hit by this NTD.

Figure 2. Magnitude of Buruli ulcer in AFRO



26 countries are concerned by Buruli ulcer in the Region; 15 of which are confirmed endemic countries and 11 neighbouring ones are considered potentially endemic for Buruli ulcer. Since 2000, around 5,000 new cases are reported annually from 8 countries and cumulative cases since then are estimated at 50,000.

Map 2. BU situation in the WHO African Region in 2006
(Epidemiological extrapolation from country reports in 2005)



Buruli ulcer control programme is combined at Regional level and in some AFRO member countries it is combined with the Leprosy Elimination programme, and/or other programmes like dracunculiasis, yaws, leishmaniasis and Tuberculosis. Control activities are implemented at regional and national levels within the same facilities and with the same health staff.

Selected country initiatives & success stories

Benin

Since 1998 Benin set up a specific and vertical BU National control programme.
The high political commitment enabled the country to mobilize resources through a strong partnership with various partners (Association Française Raoul Follereau, Association Luxembourgeoise Raoul Follereau, ANESVAD, Tropical Medicine Institute of Antwerp, Belgium). Reference hospitals were built in 3 most endemic regions in the South of the Country and from those facilities, BU control activities -including IEC with community relays, active and passive case finding activities, case management with surgery only in the beginning and combined with antibiotic treatment from 2004, physiotherapy and social rehabilitation- were decentralized to district level and peripheral health centres. Thanks to nationwide survey BU patients who were previously hidden from help were found raising the annual number of cases from 395 in 2000 to a maximum of 1,045 in 2005. These numbers have been progressively decreasing leading the country to combine the BU programme to the Leprosy one at the end of 2006.

Nigeria

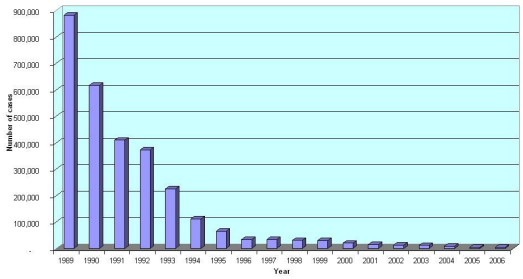
Using the Leprosy-Tuberculosis control programme network of staff at State and local government area (LGA) levels, Nigeria organised a three month sensitization campaign on BU with workshops and IEC sessions in hospitals, medical and paramedical schools. This enabled the country to suspect some cases of BU which were later confirmed during the assessment visit carried out by WHO with the support of International consultant and the Leprosy-Tuberculosis programme staff.

Cote d'Ivoire
Human African trypanosomiasis (HAT), Buruli Ulcer (BU) and Yaws are co-endemic in many regions in Côte d'Ivoire (i.e. Daloa,Bouaflé and Aboisso, etc). Studies conducted in Côte d'Ivoire have shown that the clinical examination during mass surveys is a feasible and suitable strategy for the control of BU and Yaws. There was no extra cost for the detection and management/treatment of BU and Yaws.

DRACUNCULIASIS (GUINEA-WORM DISEASE)

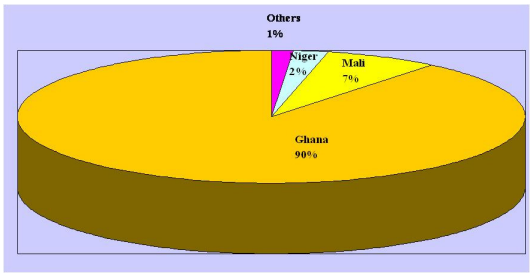
In 1986, he number of persons affected was estimated at 3.5 millions worldwide. Since the World Health Assembly adopted for the first time the Resolution WHA39.21 calling for Guinea worm disease eradication, the number of dracunculiasis case was decreased from 883 640 in 1989 to 4 628 cases in 2006 representing 99.47% reduction

Figure 3. Number of guinea worm cases notified by year in the WHO/ African Region from 1989 to 2006



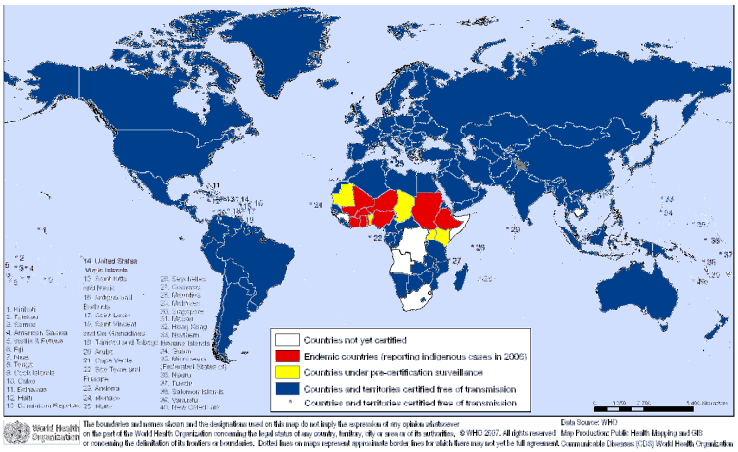
In 2006, in the region 8 countries are still endemic: Burkina Faso, Côte d'Ivoire, Ethiopia, Ghana, Mali, Niger, Nigeria, and Togo reporting a total of 4 628 cases of guinea worm disease. 89% of all cases come from Ghana followed by Mali and Niger 7% and 2% respectively.

Figure 4. Distribution of the 4 634 cases of dracunculiasis notified in the WHO African Region, in 2006



The new target date for dracunculiasis eradication is December 2009.

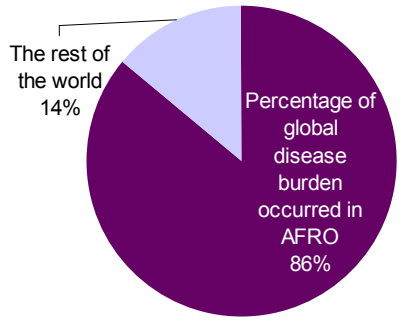
Map 3. Certification of Dracunculiasis Eradiation Status as of March 2007



Human African trypanosomiasis (Sleeping sickness)

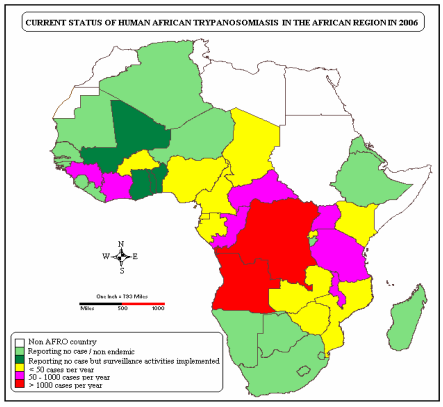
Human African trypanosomiasis threatens 60 millions of people in 36 countries of sub-Saharan Africa. The prevalence of the disease differs from one country to another as well as in different parts of a single country.
It is difficult to assess the accurate situation in a number of endemic countries because of lack of surveillance and diagnostic expertise.

Figure 5 . Magnitude of human African trypanosomiasis in AFRO



In 2005, major outbreaks have been observed in Angola, the Democratic Republic of Congo and Sudan. In Central African Republic, Chad, Congo, Côte d'Ivoire, Guinea, Malawi, Uganda and United Republic of Tanzania sleeping sickness remains an important public health problem. Countries such as Burkina Faso, Cameroon, Equatorial Guinea, Gabon, Kenya, Mozambique, Nigeria, Rwanda, Zambia and Zimbabwe are reporting fewer than 50 new cases per year. In countries such as Benin, Botswana, Burundi, Ethiopia, Gambia, Ghana, Guinea Bissau, Liberia, Mali, Namibia, Niger, Senegal, Sierra Leone, Swaziland and Togo transmission seems to have stopped and no new cases have been reported for several decades. The known endemicity status is shown in Map 4.

Map 4. Distribution of human African trypanosomiasis in the WHO African Region, 2006



Only a small fraction of them are under surveillance with regular examination, have access to a health centre that can provide diagnostic facilities, or are protected by vector control interventions. Case detection, treatment and prevention in most cases require "specialised" human and material resources.

The control of the disease is expensive and is a major burden to the budget of Ministries of health of the endemic countries. Nonetheless, in most endemic countries, HAT activities are now included in their national health plans and policy documents are available; some of them have appointed a national coordinator or focal point to lead the programme and have allocated funds for HAT activities on the national budget. This is the case in Angola and in Benin where an annual budget of about USD 1 000 000 and USD 100 000 is given respectively by the Governments to strengthen the national control programme.

20 endemic countries out of 21 countries targeted have been supported to implement control activities in priority areas. All those countries have reached the performance of 100% of treatment of cases detected. An accelerated or intensified plan has been launched to eliminate HAT.

In 2006, success in curbing the number of sleeping sickness cases has encouraged a number of private partners to sustain the WHO initial effort towards the elimination of the disease as a public health problem. The development of partnership for resource mobilization at country level was a success story in Guinea Conakry, where the National control programme with the support of WHO country office and the HAT inter country adviser got a Grant of about USD100, 000 from the Japanese Cooperation for the renovation of the HAT reference centre in Dubreka. Sanofi-aventis and IRD (French cooperation) are involved in HAT control activities in Guinea.

Clinical trials of combination therapy

WHO is collaborating with TDR, DNDi and national research institutions to promote clinical trials of combination therapy in Angola, Congo, DRC and Uganda where the disease is refractory to the currently used trypanocids. French Research Institute for Development (IRD) in Guinea, Côte d'Ivoire and Burkina Faso, and the Pan African Tsetse and Trypanosomiasis Eradication Campaign – PATTEC projects sponsored by the African Development Bank in Mali, Burkina Faso, Ethiopia, Ghana, Uganda and Kenya.

As seen from the figure 6 there is a downward trend in the annual incidence of the disease over the past ten years. By 2005, surveillance had been reinforced and the number of new cases reported throughout the continent had substantially reduced; between 1998 and 2005 the figures for both forms of the disease together fell from 37 991 to 16378. The estimated number of cases is currently between 50 000 and 70 000.

Figure 6.Time trend of new cases detected in the African Region 1990 – 2004

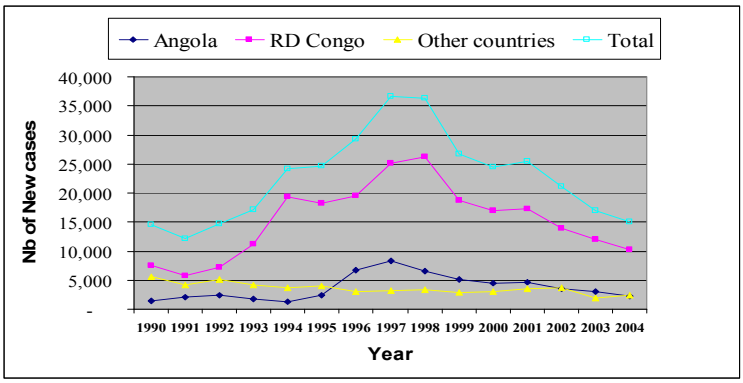
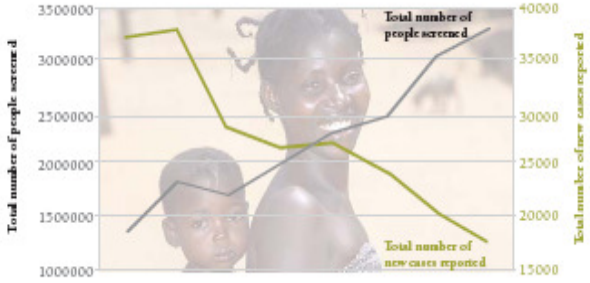


Figure 7. Number of people screened by active case-finding surreys, number of new cases of HAT reported 1997-2004



LEISHMANIASIS

Visceral leishmaniasis (VL) or Kala-azar is mainly present in Ethiopia, Kenya and Uganda in given foci where the disease can be highly prevalent. More specifically in Ethiopia five historical foci are recognized although VL is spreading to non-endemic areas. Co-infection of leishmaniasis-HIV reaches up to 35% of the total VL infected patients putting some areas of Ethiopia in the top of co-infection world wide.

Selected initiatives

In May 2005 it was discovered a new foci in Amhara state where 1841 VL cases were recorded in 2006. With the help of the Spanish government (AECI), under the leadership of the Ministry of Health it was launched a survey to understand the background of this epidemic that was completed with specific recommendations for its control. Support was provided for case management in the health centers of Addis-Zemen and Metema.

Active case detection and early diagnosis and treatment have reduced the incidence of the disease to a third at the end of 2006 thanks to the activities developed by the Regional Health Bureau, MSF-Greece and WHO.

Capacity building and guiding

Groundwork for the National Guidelines for the Diagnosis and treatment of leishmaniasis was terminated in 2006 for both Ethiopia and Uganda updating in the most advanced tools for diagnosis and drugs for treatment.

LEPROSY

Elimination of leprosy is defined as the reduction of the prevalence to less than one case per 10,000 inhabitants. 42 out of 46 member countries in the Region have achieved the leprosy elimination goal at national level. With the average regional prevalence rate of 0.63 cases per 10,000 inhabitants, the goal of elimination is achieved at regional level in the African Region as shown in Table x below. The strategy based on early detection and effective treatment of cases with leprosy multi drug therapy (MDT) leads to an important reduction of new cases, of people at risk of the disease, and of deformities.
Four countries yet to reach elimination are: Democratic Republic of Congo, Madagascar, Mozambique and United Republic of Tanzania. Leprosy remains a national priority and is benefiting from a high political commitment in countries where the goal of elimination is not reached. This commitment is translated in to development of plan of action for leprosy elimination. These countries are expected to achieve the elimination goal by the end of 2007.

Table 4. Indicators in Leprosy Elimination Programme, WHO/AFRO, 2005

Indicators	**End of 2004**		**End of 2005**	
	Numbers	**Rates/%**	**Numbers**	**Rates/%**
Prevalence (/10,000)	47,699	0.69	43,587	0.63
Detection (/100,000)	46,964	6.82	45,179	6.54
New MB cases	32,042	68%	31,357	69%
New cases with disability grade 2	5,129	11%	4,562	10%
New female cases	8,787	19%	10,471	23%
New child cases	4,928	10%	4,409	10%
Cumulative relapses	9,247	1%	10,156	1%
Prevalence / Detection ratio		1.02		0.96
Number of countries having reached the elimination goal	38	83%	42	91%

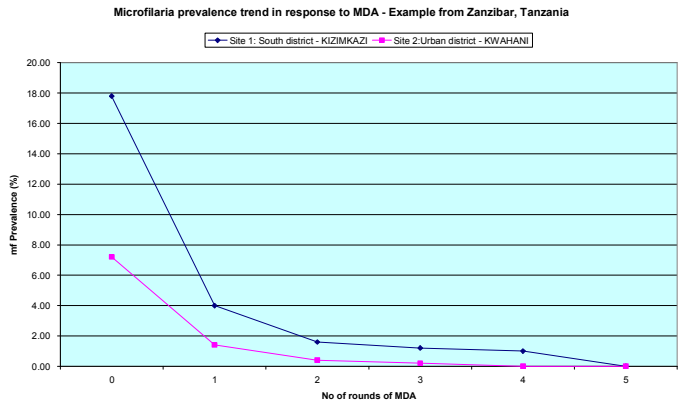
Source: Ministry of Health (MOH) of WHO African States Member

In spite of the above-mentioned good results, the infection is still occurring and countries in the Region are detecting more than 40,000 new cases every year remaining the second most endemic WHO region. There is a need to maintain efforts to sustain elimination goal and further reduce leprosy burden in countries.
The negative image of leprosy among populations and discriminatory attitude contributing to the spread of the disease are now largely minimized but still should be tackled. While the discrimination against leprosy patients with visible deformity persists, the integration of cured people continues to improve. The cure rate is up to 80% in all countries because of effective participation of different communities in case management activities.

LYMPHATIC FILARIASIS

Lymphatic filariasis elimination programme targets 39 endemic countries in the Region with an estimated population of at risk of 420 million. To date a population of 139.5 million has been identified to be at risk in 22 countries where assessment has been conducted.
Mass drug administration of the at risk population using a combination of ivermectin or diethylcarbamizine (DEC) and albendazole is on-going in eleven (11) countries covering a total population of 38 million. The integration/co-implementation of mass drug administration in LF elimination and similar activities in programmes for control of onchocerciasis, schistosomiasis and soil-transmitted helminthiasis is being promoted and advocacy for partnership around this approach is being intensified. Five countries (Guinea, Guinea-Bissau, Malawi, Senegal and Sierra Leone) have developed national integrated plans of action for helminthic disease programmes.
The lymphatic filariasis programmes in Nigeria and Zanzibar have piloted the triple therapy with ivermectin, albendazole and praziquantel in communities that have received at least five rounds of mass drug administration with combination of ivermectin and albendazole and praziquantel in separate administrations. This is part of evidence building towards co-implementation of programmes for LF, onchocerciasis, schistosomiasis and STH. Available data indicated that 5-6 rounds of MDA with co-administered drugs were able to bring down the microfilaria prevalence below 1% (threshold for interruption of transmission) as shown in Figures 8.

Figure 8. Microfilaria prevalence trend in response to MDA – Example from Zanzibar, Tanzania, 2006



The programmes in Ghana and Burkina Faso reached national scale covering approximately 10 million and 13 million people respectively. The other countries that had reached national scale in the past are Comoros and Togo.
A manual providing various approaches and different opportunities for use by countries in effecting integrated approach to implementation of NTD programmes is close to finalization.
Disease mapping is still planned in 10 countries in central Africa region. Based on epidemiological data the likelihood of transmission having been interrupted over time has been reported in three countries (Cape Verde, Mauritius and Seychelles) and verification of possible non-endemicity of these counties has been requested.
The status of lymphatic filariasis elimination programme in the Region is summarized in Table 5.

Table 5. Status of PELF in WHO African Region - Mapping and MDA, 2006

Mapping Complete & MDA started (10)	**Mapping on-going & MDA started (1)**	**Mapping complete & MDA not started (12)**	**Mapping on-going (7)**	**Countries without definitive plan for mapping (10)**
Benin Burkina Faso Comoros Ghana Kenya Madagascar Mali Tanzania Togo Uganda	Nigeria	Cape Verde (3) Cote D'Ivoire (1) Gambia Guinea Guinea Bissau (1) Equatorial Guinea Malawi Mozambique Niger (1) Senegal Sierra Leone Zimbabwe	Cameroon 2) Liberia Zambia Burundi (4) Congo (4) Gabon (4) Rwanda (4)	Angola Chad Central African Republic DR Congo Eriteria Ethiopia Mauritius (3) Rwanda Sao Tome & Principe Seychelles (3)

(1) National Plans of action developed
(2) Re-mapping to be conducted
(3) Verification of interrupted transmission requested
(4) At advanced planning stage for mapping

Selected country initiatives & success stories

Sierra Leone

Advocacy to raise funds for implementation of Sierra Leone integrated plan of action for helminthic disease programmes has resulted in contributions from Mectizan Donation Programme ($115,000) and World Bank lymphatic filariasis Trust Funds ($90,000) to support LF mass drug administration co-implemented with onchocerciasis control (ivermectin distribution).

Burkina Faso

The government of Burkina Faso has made an annual allocation of
USD 400, 000 to the lymphatic filariasis programme and with additional support from partners this has enabled the programme in Burkina Faso to reach national scale within 4 years to cover the entire at risk population of approximately 13 million.

Togo
The LFE activities benefited from the Global Fund for malaria control on the understanding that interventions in LF elimination improve outcomes for malaria.

Uganda
Uganda has extended the activities conducted during Child Health Days Plus to offer platform for integrating mass drug administration for lymphatic filariasis elimination, onchocerciasis control, and schistosomiasis and soil-transmitted Helminths control. The costs of planning, training, and supervision were shared by the interventions conducted during this same period (Vit A supplementation, Deworming, LFE, Oral Polio & DPT, and measles vaccinations.

SCHISTOSOMIASIS AND SOIL TRANSMITTED HELMINTHS

Schistosomiasis and STH are among the most prevalent public health problems in sub-Saharan Africa. The morbidity due to a combination of Schistosomiasis and soil-transmitted helminthes (STH) constitute a heavy public health burden and a clog in the wheel of development of affected countries. Schistosomiasis is endemic in all countries except in Lesotho while STH is endemic in all the 46 countries of the Region.
Seven (7) countries (Burkina Faso, Cameroon Mali, Niger, Tanzania, Uganda and Zambia) are implementing national programmes for control of schistosomiasis which also includes STH where the two diseases are co-endemic. Activities for control of schistosomiasis and/or STH are on-going in a number of other countries.
Preventive chemotherapy in Schistosomiasis and soil-transmitted Helminths gained momentum with countries launching national worm control programmes or linking deworming activities with Child Health Day's or vaccination campaigns.
The inclusion of deworming in the package of immunizations or Child Health Days has greatly increased deworming coverage particularly in children under five years old. For example, six countries (Ethiopia, Kenya, Madagascar, Tanzania, Uganda and Zambia) have included deworming in either immunization or Child Health Days campaigns which are conducted at national or sub-national level.

Selected country initiatives& success stories

Angola
The Ministry of health with support from WHO, UNICEF and WFP developed a comprehensive strategy on School Health Programme. The 1st phase of this plan is a de-worming initiative targeting primary school children in the 7 provinces (Cabinda, Uige, Zaire, Kwanza Norte, Kwanza Sul, Bengo and Luanda) most affected by parasites following a baseline survey in school age children undertaken in 2005.
In addition, in July/August 2006, a multi-intervention 'Viva a Vida com Saude' campaign was organized by the Ministry of Health (MINSA) with support from UNICEF, WHO and other key partners. The campaign reached 4.1 million children nationwide, reaching between 80% and 109% of the target populations for the five interventions included in the campaign in which 2.9 million, 97% of the target population was reached.

Burundi, Central Africa Republic and Swaziland
The three countries combined deworming to national measles campaign reaching 1,187,269 under five children (113%) out of 1,053,546 in Burundi, 504,026 (91%) out of 554,314 targeted in CAR, and 126, 326 children (87,0%) out of 144, 474 targeted in Swaziland

REGIONAL OFFICE FOR THE AMERICAS

<to be inserted AMRO map>

In Latin America and the Caribbean (LAC) about 25% of the population live on less than $2 (US) a day[1], over 210 million people (>38%) live below the poverty line, and most suffer from a series of neglected diseases [2] (NDs).

The box below shows the percent (%) of global disease burden arising in the Amercias, based on Disability-Adjusted Life Years (DALYs). The combined burden of morbidity expressed as DALYs and mortality in the American Region is a clear reminder of the Unfinished Agenda in Primary Health Care and the need for the Region to move forward more rapidly to meet the MDGs by 2015.

Table 6. Percentage of Global Disease Burden arising in the America, based on Disability Adjusted Life Years (DALYs)

Condition or Disease	Percentage (%)
Chagas disease	99.8
Trichuriasis	17.7
Ascariasis	14.6
Schistosomiasis	10.4
Leprosy	10.1
Hookworm Infection	8.2
Leishmaniasis	2.5
Onchocerciasis	0.3
Lymphatic Filariasis	0.2
Trachoma (b)	0.0
African Sleeping Sickness	0.0
(a) Modified from Table 3 in Hotez PJ et al., Clin Infect Dis 2004; 38: 871-8 and Table 1 in Hotez PJ et al., Rev Panam Salud Publica 2006;19: 118-23. (b) Some cases are reported.	

There are great opportunities for synergy, cost-savings and sustainability presented by integration of ND prevention and control with other diseases, and through inter-sectoral

[1] World Bank. Latin America & the Caribbean. Poverty Reduction and Growth: Virtuous and Vicious Circles, 2006.

[2] In this report, the term Neglected Disease (ND) will be considered as interchangeable as Neglected Tropical Diseases (NTDs), though not all the NTDs in the Region are limited to the tropics and subtropical zones (e.g. plague, Chagas disease, fascioliasis, leptospirosis).

and inter-programmatic approaches for their prevention, control and elimination. Success stories from various parts of the globe, often pioneered by NGOs, have encouraged PAHO to plan to test these approaches through proof of concept studies based on the design and implementation of small-scale inter-sectoral plans of action. These small-scale inter-sectoral plans of action (pilot projects) are now being developed in AMRO, the first Region to do so. The concepts of integration and inter-sectoral and inter-programmatic action for ND control form the basis for PAHO's new strategic plan framework for the prevention, control and elimination of these diseases in support of health equity, well-being and the Millennium Development Goals.

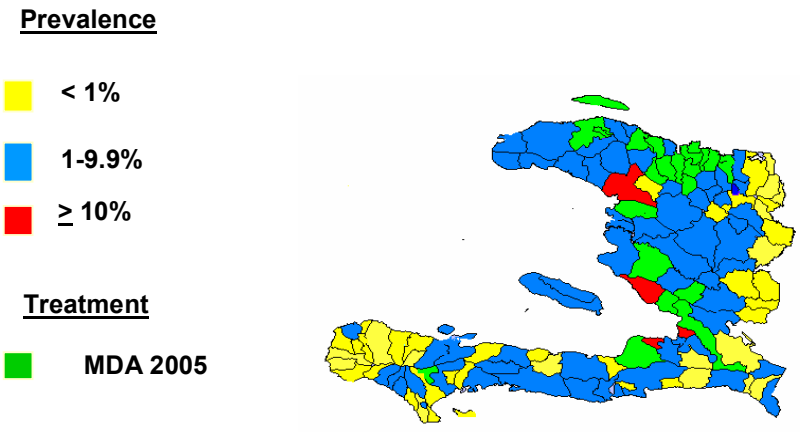
LYMPHATIC FILARIASIS

An estimated 8.8 million people are at risk for lymphatic filariasis (LF) infection in the American Region. Seven countries in the Americas are listed by WHO as LF-endemic with only 4 countries, Brazil, the Dominican Republic, Guyana and Haiti currently reporting active transmission. Recent epidemiological and entomological studies indicate transmission seems to have been interrupted in Costa Rica, Trinidad & Tobago and Suriname. Interventions which have proven successful to decrease the prevalence of LF in the Region include mass drug administration (MDA), selective treatment of individual microfilaria carriers and interventions to combat the vector.

Selected country Initiatives & success stories

Haiti

In Haiti an estimated 6 million people are at-risk of infection and approximately 560,000 persons estimated to be infected. The largest concentration of infection is found in the western region of the country (see figure 1). In 2005 over 1.2 million persons were treated with DEC and albendazole achieving a coverage of 70% in the targeted areas. In 2006 MDA did not proceed due to a lack of funds, however, funding has been secured for 2007 and nearly 1.5 million people are targeted for treatment this year. Support groups to provide care for persons affected by lymphedema are now operating and discussions are underway to consider integrating LF and malaria control activities in Haiti, as well as a joint LF- Malaria control program for the island of Hispaniola.



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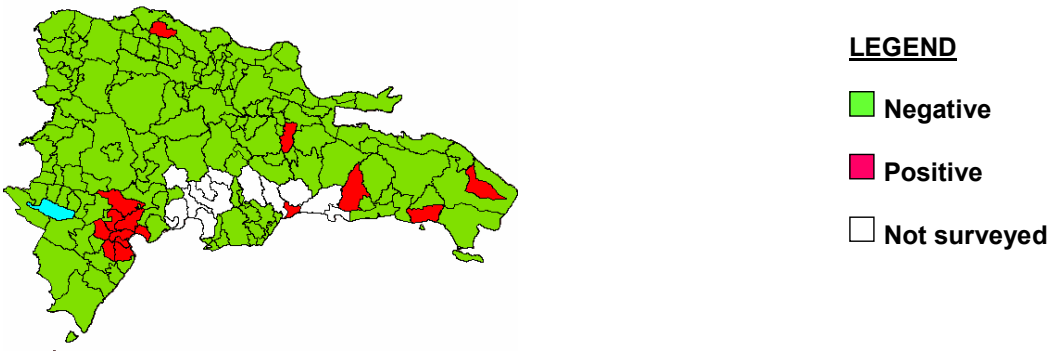
Map 5. LF prevalence and 2005 MDA in Haiti

Dominican Republic
An estimated 740,000 people are at risk for LF infection in the Dominican Republic and an estimated 50,000 are infected. Mapping of the principal areas have been carried out (see figure 2), however it needs to be completed in some areas and is scheduled to be completed by March 2007. The program to eliminate lymphatic filariasis is based on multidisciplinary activities, and is integrated within Primary Health Care in the Barahona Region.



Map 6. LF distribution in DOR

Guyana
In Guyana 630,000 people are at risk which comprises nearly 90% of the national population and 50,000 are estimated to be infected. In 2003 the program of DEC-fortified salt was initiated in response to the fact that the at-risk population is widely dispersed throughout the country. Guyana is the only country in the Region using DEC-fortified salt as the basis of their LF elimination strategy and is working to improve coverage and increase production and importation of DEC-fortified salt, which remains a major barrier to salt distribution.

Brazil
In Brazil, active transmission of LF exists in two foci, primarily in the metropolitan area of Recife (Pernambuco state), where the entire population of nearly 1,500,000, is considered to be at risk. The second focus for active transmission is in one small area of Maceió (Alagoas state), however, it is considered to be in a state of pre-elimination. Epidemiological mapping of active foci in Brazil is almost complete with only parts of the metro area of Recife remaining. The intervention strategy traditionally followed in Brazil has been that of blood surveys and selective treatment of individuals. Since 2003, part of the metropolitan area of Recife has adopted an MDA strategy using DEC tablets alone, which has expanded from 18,000 initial annual treatments to just over 83,644 annual treatments in 2006.

ONCHOCERCIASIS

In AMRO the Onchocerciasis Elimination Program for the Americas (OEPA) is responsible for its elimination. Partners include PAHO/WHO, Lions Club, Gates Foundation, CDC, Carter Center, Merck & Co. Inc., universities and the endemic

countries. PAHO is a member of the program coordinating committee (PCC) of OEPA (along with the national program managers, CDC, Carter Center and others) and is involved in the technical review of the OEPA program through participation of its RA for parasitology/NTDs in collaboration with the RA for blindness prevention and vision health.

Only six endemic countries remain in the Region (Brazil, Venezuela, Colombia, Ecuador, Guatemala and Mexico) with a total of only 13 well-delineated foci. Ivermectin (Mectizan donation) is used for mass treatment and distributed twice yearly in active foci to eliminate the microfilaria of *O. volvolus*. Parasitological, entomological and ocular morbidity surveys are conducted periodically to monitor elimination of ocular morbidity, parasite transmission and infected vector populations. Annual meetings (the Inter American Conference on Onchocerciasis, IACO) are held to discuss progress towards elimination.

All endemic countries far reached the target; more than 85% of ivermectin national coverage rates

Currently nearly ½ million people are at risk in 1,950 endemic communities in 13 foci. Twice-yearly MDA with ivermectin began in 1995, and up to 11 rounds of twice-yearly treatment with ≥ 85% coverage having occurred in five foci. In 2005, over 885,000 treatments were provided, and by the end of 2006 and for the first time all six countries reported achieving ≥ 85% ivermectin national coverage rates, the treatment target rate. In 2006 based upon a recommendation from the PCC, Guatemala chose to suspend ivermectin treatment in its Santa Rosa focus as transmission appears to have been interrupted; epidemiological surveillance will continue for at least 3 years. Transmission appears to also have been interrupted in 2006 in Colombia's single focus.

Table 7. Transmission status in the 13 foci of the Americas Region 2006. Courtesy of OEPA, 2007.

Transmission status in the 13 foci of the Americas region 2006

Focus	Transmission status*	# of rounds>85%
Santa Rosa, Guatemala	Interrupted	10
Lopez de Micay, Colombia	Interrupted	11
Huehuetenango, Guatemala	Suspected interrupted	11
Escuintla, Guatemala	Suspected interrupted	10
Oaxaca, Mexico	Suspected interrupted	10
North Chiapas, Mexico	Suspected interrupted	9
South Chiapas, Mexico	Different transmission status	11
Esmeraldas, Ecuador	Different transmission status	11
Amazonas, Brazil	Ongoing	11
Central Focus, Guatemala	Ongoing	10
Nor-central, Venezuela	Ongoing	8
North-eastern, Venezuela	Ongoing	7
South, Venezuela	Ongoing	1

* based upon entomological (PCR) indicator of less than 1 infected fly and serology (Ov 16/antigen) negative in children.

As well, ocular morbidity appears to have ended in at least eight foci, showing significant advancement towards the regional goal of OEPA to eliminate ocular morbidity by end of 2007. See Table 2.

Table 8. Ocular morbidity status in the 13 foci of the Americas Region 2006. Courtesy of OEPA, 2007.

Ocular morbidity status† in the 13 foci of the Americas region 2006

Country	Focus	Baseline		Penultimate		Last		Current status
		Year	Prevalence	Year	Prevalence	Year	Prevalence	
Mexico	Oaxaca	1995	0%	2000	0.2%	2004	0%	Eliminated
	North-Chiapas	1995	0.6%			2006*	0%	Eliminated
Guatemala	Huehuetenango (Cuilco)	1981	7.2%			2006*	0%	Eliminated
	Escuintla	1979	6.2%			2006*	0%	Eliminated
	Santa Rosa		N/A			2005*	0%	Eliminated
Venezuela	North-Central	1999	31%	2001	0%	2005	0%	Eliminated
Colombia	Lopez de Micay (Cauca)	1996	2.2%	1998	0%	2006	0%	Eliminated
Ecuador	Esmeraldas / Pichincha	1991	24.7%	2000	0%	2004	0%	Eliminated
Mexico	Chiapas South	1995	1.5%	2000	0.7%	2004 2006*	0.2% 0.0% *	Supposedly eliminated ??
Brazil	Amazonas/Roraima	1995	31.2%	1998	0.1%	2003	2.7%	Ongoing
Guatemala	Central Focus	1981	20.7%			2003	2.9%	Ongoing
Venezuela	South	1998	10.5%	2001	8.7%	2007	scheduled	Ongoing
	North-eastern	1999	21.7%	2001	4.2%	2005 and 2006*	0% and 3.3% *	Ongoing

*Extra-sentinel communities
† Based upon MfAC

LEPROSY

Major progress has been made in leprosy control in the Region of the Americas. A number of countries in the Region have instituted leprosy programs that operate in accordance with WHO recommendations, have achieved their elimination targets, and are in the process of implementing the new WHO Global Leprosy Strategy. Leprosy programs in the Region, formerly specialized vertical programs, are becoming increasingly integrated and decentralized into basic or primary health-care setups as is the case in Paraguay, Colombia, Costa Rica, El Salvador, Mexico and Ecuador.
Prevalence and new detection rates declined in the Region and elimination status was sustained in all countries that have reached elimination (Table 9)

Table 9. Profile of newly detected cases reported by countries* in AMRO

Country	MB Proportion (%)	Female Proportion (%)	Child Proportion (%)	Grade 2 Disabilities Proportion (%)
Argentina	79.1	40.9	1.3	1.6
Brazil	50.0	46.3	8.4	4.9
Bolivia	35.9	41.2	9.6	1.7
Colombia	68.7	-	3.2	9.7
Cuba	83.1	44.7	3.8	3.3
Dominican Republic	63.8	50.3	16.1	3.2
Ecuador	62.9	35.3	0	0
México	75.4	37.3	2.7	11.7
Paraguay	77.7	38.5	3.9	7.9
Venezuela	64.5	33.9	7.2	6.1

*Countries reporting 100 or more new annual cases

The prevalence of leprosy in the Americas Region at the end of 2006 was 32 904 cases (0.39 per 10 000) and the number of new cases reported in 2005 was 41 780 (Table 10)

Table 10. AMRO Leprosy indicators, end of 2005.

Indicators	Number of Cases	Rate/Proportion
Prevalence	32 904	0.39/10.000
Detection	41 780	4.98/100.000
New case MB	21 845	52.0%
New cases child	3 402	8.0 %
New cases disabled	2 107	5.0 %

Early detection and integrated programme in primary health service

The countries which have achieved the elimination goal are making efforts to further reduce the leprosy burden in accordance with the WHO Global Leprosy Strategy with emphasis in early detection and integrated approach in primary health services. Brazil, which accounts for the highest burden of leprosy in the Region, has continued to make improvements towards the goal of elimination.
620 health professionals in 11 countries were trained on proper detection, diagnosis, treatment and best practices over the last two years. A bi-national case-management workshop was held in Haiti and the Dominican Republic to promote capacity building and strengthening of basic skills in leprosy control.

CHAGAS DISEASE (AMERICAN TRYPANOSOMIASIS)

In the American Region 15,632,000 persons are estimated to be infected with Chagas disease and nearly 30,000,000 live in endemic areas and are considered to be at risk. Annually, vector-borne transmission accounts for 41,800 new infections and congenital Chagas accounts for 13,550 infections. Chagas seroprevalence in the regional blood banks averages 1.28% and table 3 outlines the national seroprevalence for countries in the southern cone. Another case of authchnous transmission of *T. cruzi* in the USA was reported in 2006 in addition to imported cases, and nation-wide serological screening of blood banks for *T. cruzi* is being considered.

Table 11: *T. cruzi* antibody seroprevalence in blood donations by country in the Southern Cone, 2006

Country	Prevalence (%)
Argentina	2.47
Bolivia	8.0
Brazil	0.21
Chile	0.60
Paraguay	3.2
Uruguay	0.47

Interruption of transmission in more than 80% of the endemic Southern Cone

Trypanosoma cruzi vector transmission has been interrupted in Uruguay (1997), Chile (1999) and more recently in Brazil (2006) and large areas of Argentina and Paraguay

(see table 4). Transmission in more than 80% of the endemic Southern Cone has been interrupted. The National Chagas Control Program has been more rigorously enforced in the Andean Sub-region. A surveillance system has been designed and implemented in the Amazonian Basin. The Chagas Control Program and the Blood Banks Program serologically screen 98% of the blood in endemic countries. While household control of *Triatoma dimidiata* is more advanced in the Region, vector control activities in Bolivia have led to a reduction of the peri-domestic vector *Triatoma infestans* and a reduction in pediatric seroprevalence which has been a major achievement for the Region. Control efforts have also led to *Rhodnius prolixus* vector elimination in areas of El Salvador, Guatemala and Honduras. Effective control interventions have resulted in a decrease in the incidence of acute Chagas cases and a lower prevalence of chronic cardiovascular and digestive pathologies leading to a reduction in primary human infections and reinfection in exposed populations.

Table 12: Southern Cone Initiative: Interruption of transmission of *T. cruzi* by *Triatoma infestans*, 2006

Countries	Interruption Status in endemic areas	% reduction in transmission
Argentina	5 provinces out of 19	26
Brasil	13 states out of 13	100
Chile	7 regions out of 7	100
Paraguay	1 department out of 17	6
Uruguay	13 departments out of 13	100

LEISHMANIASIS

Leishmaniasis is widespread in the Region with cases reported from the south of Texas to areas of northern Argentina. In the American Region Colombia, Brasil, Paraguay, Venezuela, Panama, Ecuador and Peru have the highest prevalence rates of cutaneous leishmaniasis and Brasil has the highest burden of visceral leishmaniasis. Estimating the prevalence of leishmaniasis accurately is challenging given that many cases are not diagnosed, there are a high number of asymptomatic patients of visceral leishmaniasis and the lack of mandatory case reporting.

SCHISTOSOMIASIS

Schistosomiasis in Latin America and the Caribbean is caused by *Schistosoma mansoni* only and is endemic in St Lucia, Guadeloupe, Martinique, Suriname, the Dominican Republic, Venezuela and Brazil, and perhaps Puerto Rico. The disease is focal in most if not all areas, and morbidity and mortality appear generally low though severe morbidity and deaths are still reported in Brazil each year (a fact made visible due to a strong surveillance system). National schistosomaisis control programs in Venezuela and Dominican Republic appear to be less active in recent years, but Brazil's programs remain active though a Schistosomiasis Control unit (PCE/SVS) in the Ministry of Health (MOH) and various states and municipalities which implement passive (and sometimes active) case surveillance, and snail surveys. Neuroschistosomiasis cases are reported from Minas Gerias state, and this pathology is receiving more attention, particularly in the principal endemic states of Minas Gerias, Bahia and Alagoas in Brazil.

Selected country Initiatives

St Lucia
Passive surveillance of schistosomiasis is conducted in St Lucia by the Ministry of Health. This involves food handlers and pregnant women who are required to submit stool samples for testing. Furthermore, research is currently being conducted by the Spartan Health Sciences University School of Medicine on the island. Family members of infected individuals are followed up and treatment is provided free of cost. The Ministry of Health is also conducting snail control with an objective of eradication around the foci where infected individuals are reported.

The situation in St Lucia appears to typify that within the other countries of the Caribbean Basin (including Suriname) where schistosomiasis appears to occur in small geographic foci at low prevalence. This situation suggests that elimination of the disease from theses countries is possible. The government of Suriname has expressed interest in the elimination of schistosomiasis from the country and has requested technical cooperation from PAHO.

SOIL-TRANSMITTED HELMINTHS (STH)

Geohelminths or soil-transmitted helminth infections poses a major public health threat and their control is needed to achieve the Millennium Development Goals in the Region. In the Americas, children, women, and rural communities have higher prevalence levels due to insufficient potable water supplies, inadequate hygiene and excreta disposal systems. Prevalence can reach over 70% in some rural communities; however the intensity of infection is usually low, with high-intensity infections less common. Indigenous populations are also vulnerable to STH infection due to the relative poverty that most of these communities experience. An infectious disease review on South-American indigenous populations[3] found that STH prevalence in many indigenous groups was over 50%, and reaching over 70% for *Ascaris lumbricoides* and *Necatur americanus*. Other published studies record prevalences above 90% in indigenous communities in the Region.

Multi-disease and inter-programmatic approach

In 2005 an estimated 38% of children living in extreme poverty in the Region were covered by deworming programs offered by ministries of health, UN agencies (UNICEF, WFP, PAHO) often partnering with NGOs.

PAHO is promoting an intersectoral, multi-disease and inter-programmatic approach for the control of geohelminths, combining mass drug administration strategies with health education and improvements in water supply and excreta disposal systems, and linking other programs such as health schools, healthy municipalities, micronutrient distribution, vaccination campaigns, MCH clinics, and with nutrition improvement (improved farming, agroforesty) and income-generating activities to combat the poverty that contributes to STH infection. Some countries in the Region are already combining these strategies within national health plans, such as Haiti and Argentina. Nicaragua and other countries

[3] Hurtado AM et al. Ann Rev Anthropol, 34: 639-665, October 2005.

are taking advantage of national immunization campaigns and national health weeks to integrate deworming drug distribution and education. During Vaccination Week in the Americas promoted by PAHO/WHO over 17 million women and children in Mexico and over 1.1 million in Nicaragua benefited from the distribution of anti-parasitic drugs as well vitamin A, folic acid, iron and oral rehydration solutions. At least six countries in the Region (Argentina, Haiti, Nicaragua, Honduras, Ecuador and Dominican Republic) have established national programs for helminth control often involving NGOs, while others (e.g. Brazil, Guyana) carry out passive surveillance and individual diagnosis and treatment at the local level. In several of the English-speaking Caribbean nations parents deworm their children before each school year begins, though this custom may be on the wane.

Two technical workshops to develop plans of action to support scale up of STH control by 2010 are scheduled for 2007 in the Region, one of them for English speaking Caribbean countries, Haiti and Suriname and the other one for Central America, Dominican Republic, Panama and Mexico. These workshops will focus on encouraging countries to develop strategic geohelminth control programs based on an interprogrammatic, intersectoral and multidisease approach.

Selected country initiatives & success stories

Belize

PAHO and the Ministry of Health, Belize with support from PAHEF conducted a survey of soil transmitted helminths among 500 school age children in southern Belize, the poorest part of the country. The study showed that 60% of children were infected with STHs with prevalence of *Ascaris lumbricoides*, hookworm and *Trichuris trichiura* estimated at 24.6%, 22% and 40.2%, respectively. The study areas which have high populations of indigenous Maya, Garifuna, Mestizo and migrants from across Central America are characterized by stunting among children combined with high levels of poverty and unemployment.

Following the baseline study, PAHO and the Ministry of Health Belize have drafted a multi-disease, inter-programmatic, inter-sectoral project proposal to combat NDs in southern Belize. The project will use deworming of school-age children as an entry point for the integrated control of soil-transmitted helminths while improving the health of women of child-bearing age and pre-school children. The project is also expected to develop improved and integrated surveillance of leishmaniasis, leprosy and other skin diseases and Chagas disease. Among the expected outcomes of the project is the development of sustainable micro-enterprise and agricultural initiatives aimed at increasing household income, food security and, indirectly, family health. PAHO has identified several partners in the international development community and among local and international NGOs who will participate in the non-health related sectors of the project.

Haiti

A strategy for a national school health program based on PAHO's Health-Promoting Schools Regional Initiative (HPSRI) has been recently developed following a workshop organized by PAHO, the Ministry of Health and the Ministry of Education to discuss the health status of school-age children in Haiti. The draft national school health program advocates incorporating STH control and prevention interventions and possible linkage with lymphatic filariasis control interventions, within the HPSRI. A World Bank-funded

project including deworming is concluding, and it is desired to sustain the deworming efforts by incorporation into school health. A national consultant is to be hired this semester to coordinate activities for the elaboration of a strategic plan for the national school health program, with field visits and meetings at the departmental level to conduct a situation analysis and a second workshop to finalize the strategic plan.

CYSTICERCOSIS AND TAENIASIS

Cysticercosis in LAC is widespread, reported from Mexico and several countries in Central and South America including Guatemala, Honduras, Belize, Nicaragua, Ecuador, Peru, Bolivia, Colombia, Venezuela and Brazil.

There is no regional or sub-regional network dedicated to the prevention and control of this disease, nor is the condition usually reportable. Therefore there is no general political will towards its prevention and control among the countries, particularly on the human health side. This is also no agreed standard for the diagnosis of cysticercosis and taeniasis in humans or porcines and prevalence estimates may not be directly comparable among countries.

The prevalence of neurocysticercosis, based on autopsy, imaging and immunological methods, range vary widely from Colombia (1.82%) to Peru (7.1 to 26.9%), whereas in Ecuador prevalence was estimated at 8.6-10% using immunoblots and 14.4% based on CT scan. Prevalence of human taeniasis appears to be generally low across the Region, but surveys are needed. Using stool examination, coproantigen detection, self detection and post treatment recovery following estimates were obtained: Peru (0.8-2.8%), Ecuador (0.66-1.60%), Mexico (0.5-1.2%), Honduras (0.77%). In contrast, prevalence in Venezuela was reported to be 11%. These studies reflect the scope of the problem within particular foci but the problem remains on a national level in Bolivia, Nicaragua and Guatemala. Important risk factors for cysticercosis in the Region appear to be the presence of a taeniasis case in the household and the free range rearing of pigs which allows them to consume human excreta.

FASCIOLIASIS, PARAGONIMIASIS AND CYSTIC ECHINOCOCCOSIS

Human fascioliasis is widespread but occurs at low prevalence in several countries in South America from Argentina and Brazil to Ecuador, Mexico, and Guadeloupe and Puerto Rico in the Caribbean. However, there are areas where it is a significant cause of disease among school-age children and young adults - in Bolivia significant prevalence rates for human infection by *Fasciola hepatica* were reported from 24 localities (0-68%) in the Northern Bolivian Altiplano. The highest prevalence was in persons less than 20 years old and there was no gender difference. There was a higher intensity among girls of school age and a decrease in mean egg counts was seen with an increase of age. Infection rates have been reported to exceed 70% among local workers in Bolivia.

In Peru prevalence and intensity vary widely from but may be as high as 34.2% in the some regions of the Peruvian Altiplano. Several risk factors for transmission have been identified including residence in a livestock rearing area, consumption of alfalfa juice and contaminated drinking water.

Paragonimiasis in the Americas occurs among rural populations, including several indigenous populations, in several countries throughout the Region (e.g. Peru, Ecuador, Colombia, and Venezuela), but prevalence appears low though morbidity is unknown.

Morbidity in humans and livestock from Hydatid disease continues in the Region; a recent study of cystic echinococcosis noted an estimated total of 52,693 DALYS lost, while economic losses total more that $120 million per year in the Americas[4].

PARASITIC SKIN DISEASES

Data on parasitic skin diseases in AMRO is sparse. However, they have been shown to be a serious cause of morbidity in poor populations including indigenous communities in the Region. Prevalence of head lice can has been reported to be as high as 43% among resource poor populations, while scabies may affect almost 10% of school age children in these communities and has been reported at much higher prevalence in some indigenous communities. Tungiasis is present and crippling in some indigenous and fisher communities; while cutaneous larva migrans is present in some poor communities and adversely affects beach tourism in some places in the Caribbean. Recent sentinel surveillance data on travelers to the developing world found cutaneous larva migrans as the most common dermatological disorder among patients presenting after travel to the Caribbean, while leishmaniasis was found mostly in patients who had traveled to South America, and myiasis was reported most frequently among patients who had traveled to Central or South America.[5] Numerous cases of human myiasis associated with the New World screw-worm fly (a livestock pest) are reported in Jamaica, Colombia and Brazil and other countries.

Selected country Initiatives

Haiti and Ecuador

Two project proposals are under development by PAHO working with partners to address parasitic skin diseases (excluding leprosy and leishmaniasis) in Ecuador and Haiti. In Ecuador a project that integrates deworming and skin disease treatment into current disease-control programs for malaria, TB, and onchocerciasis among the indigenous population in the province of Esmeraldas is under revision. In Haiti the control of infectious skin diseases (in particular scabies, cutaneous anthrax[6] and superficial mycoses) will be part of a integrated, inter-programmatic and inter-sectoral (improved water supply, agroforesty, small animal production and health) small-scale plan of action for ND control in the upland area of the Artibonite Valley, in partnership with Hopital Albert Schweitzer and the MOH.

DENGUE

During the period 2001-2005 over 30 countries in the Region reported 2,879,926 dengue and hemorrhagic dengue cases with a total of 789 deaths. Each of the four subtypes (DEN 1, DEN 2, DEN 3, DEN 4) circulated in the region. The southern cone countries

[4] Budke CM et al. 2005. Global economic impact of cystic echinococcosis. Emerg Infect Dis 12(2): 296-303.

[5] Freedman DO et al. 2006. Spectrum of disease and relation to place of exposure among ill returned travelers. N Engl J Med 2006, 354:119-130.

[6] Veit HP et al. The relationship of Haitian small farm management to goat and cattle diseases. Rev Elev Med Vet Pays Trop. 1993;46(1-2):39-45. Veit HP et al. A survey of goat and cattle diseases in the Artibonite Valley, Haiti, West Indies. Rev Elev Med Vet Pays Trop. 1993;46(1-2):27-38. Smego RA Jr. et al. Cutaneous manifestations of anthrax in rural Haiti. Clin Infect Dis. 1998 Jan;26(1):97-102.

reported 64,6% of the total cases in the region with 1,859,259 dengue fever cases, 4,509 dengue hemorrhagic fever cases and 258 deaths. The Andean sub region reported 580,589 cases of dengue fever and dengue hemorrhagic fever (21,1% of the regional total) and 221 deaths. Central America reported 10,6% of the total, with 289,929 cases of dengue fever and dengue hemorrhagic fever, and 133 deaths. The Caribbean sub region reported 2.6% of the regional total with 76,222 dengue fever and dengue hemorrhagic fever cases. Chile and Uruguay are the only countries in the Region with no reported transmission. Haiti, despite having no apparent dengue hemorrhagic fever, has hyperendemic virus transmission, though reported data on the number of dengue cases is lacking.

The main control strategy in the Region is the Integrated Management Strategy for Dengue/DHF at the sub regional and national levels. Its main objective is to promote the integration of six components: social communication, entomology, epidemiology, laboratory, patient care and environmental management. The strategy includes the COMBI method to promote behavioural changes in the individual and the community for dengue prevention and control. A sub regional level working group (EGI) has been established in Central America and another one is planned for countries in MERCOSUR. National level EGIs are being developed in several countries: Brazil, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá, Paraguay, Dominican Republic and Venezuela.

At the regional level there are two main initiatives for dengue, Integrated Vector Management (IVM) and DENGUE-NET. IVM seeks to apply cost-effective strategies to control dengue as well as other prevalent vector borne diseases in the region. DENGUE-NET is a web-based surveillance system for dengue case reporting.

BLINDING TRACHOMA

Trachoma is apparently endemic in only a few countries in LAC, among them Brazil, Mexico and Guatemala and perhaps Bolivia and Peru; in the recent past it was reported from Haiti and Jamaica. Brazil and Mexico have active trachoma prevention and control/elimination programs, and are implementing the SAFE strategy. In an earlier study (2002) in NE Brazil, prevalence of active trachoma disease ranged from 5% to 42%. As a part of a national survey which will be completed soon, Brazilian health authorities found about 10,000 cases among 250,000 people examined in 2004. Brazil screens for active disease in schoolchildren and maps the distribution and prevalence of infection. In Chiapas, Mexico, a recent water and sanitation project by the Pan American Center for Sanitary Engineering and Environmental Sciences, part of PAHO, was implemented to reduce the prevalence of trachoma. As well the NGO Helen Keller International works in Mexico to combat trachoma. The PAHO trachoma elimination program promotes the SAFE strategy. It is coordinated by the RA for Blindness Prevention and Vision Health, located in another PAHO technical area and unit.

INTEGRATED VECTOR MANAGEMENT

Over the last two years the Region has developed a draft regional strategic plan for integrated vector management (IVM), and will be adapting it to reflect the forthcoming WHO Global Plan to Combat NTDs 2008-2015 and its IVM components.

During 2006 and early 2007 technical cooperation (TC) has been provided, among other countries, to Bahamas and Jamaica to address malaria vectors involved in malaria outbreaks arising from imported malaria cases. In addition to on-going TC, during 2007 several IVM initiatives and activities are planned to unfold.

- A PAHO-developed pesticide applicators certification program is approaching roll-out. Course materials and a course outline are prepared. Several countries in the English-speaking Caribbean and Brazil are interested in establishing the program; in the case of Brazil it may involve the agricultural sector and the health sector together.
- A situation analyses to determine the technical capacity in medical entomology and IVM are needed, to address the apparent dearth of expertise in many Ministries currently. A preliminary evaluation was conducted in Guyana recently; other countries will need evaluation to determine capacity and needs. Additionally a bi-national meeting Guyana-Suriname to address LF surveillance and *Culex* vector control through WS&S and IVM is anticipated for the second half of 2007.
- Technical cooperation to countries to advise on insecticide susceptibility testing is needed, especially to countries experiencing dengue epidemics or malaria outbreaks and MOH are considering switching insecticides to control them.
- The draft regional strategic plan for IVM needs articulation with and input from other CD strategic plans particularly those for malaria, dengue, Chagas disease and neglected diseases, before it is finalized. A meeting of the respective RAs and other key persons is needed this year to receive their input into the IVM strategic plan. This will also be the opportunity to begin the development of 3 pilot projects inserting IVM into on-going programs or new projects for control or elimination of vector born diseases (VBDs) such as malaria, LF and Chagas disease.

COUNTRY FOCUS: HONDURAS

Honduras is a new model of an integrated neglected tropical diseases control programme that includes health promotion and a search for and involvement of new partners. The national programmes are based on comprehensive actions, involving different actors in both the health sector and other sectors.

COUNTRY INFORMATION

Total population: **7 362 000 inhabitants**
Population living in rural areas: **53%**
Population below poverty line: **20.7%**
Enrollment rate (primary school): **79%**
Gross domestic product per capita (GDP): **2 900**
Public spending in health per capita: US$ **41**

MAGNITUDE OF NTDS

STH Infection	**Number of inhabitants at risk:** 7 250 000 **Prevalence:** 33% for *A. lumbricoides*, 39% for *Trichuris trichiura*, 4.9% for hookworms
Chagas disease	**Number of inhabitants at risk:** at least 300 000 **Prevalence:** 4.6% in children under 15 in areas endemic; 1.4% in adult population of blood donors, proportion of congenital disease in endemic areas approximately 10-33%
Dengue	**Number of inhabitants at risk**: 6 575 000 **Incidence**: 128.3 per 100 thousand inhabitants (2006)

PROGRAMMES AND INITIATIVES

Soil-Transmitted Helminthiasis

In 2003 a national survey in school-age children was conducted to form a quantitative basis for the establishment of a national control program of soil-transmitted helminthiasis. Involvement of external donors (NGOs, multi-lateral and bi-lateral aid agencies) and technical cooperation agencies (PAHO/WHO, World Food Program WFP) is a key element of the control strategy. Currently pilot projects involving articulation with NGOs distributing vitamin A and maternal and child health programs are under way.
Honduras continues to extend deworming coverage where feasible by integration with other disease prevention and control programs, especially the programs for Chagas disease and leishmaniasis control, maternal and child health and child immunization programmes, and the food security programs.

Chagas disease

Honduras has been one of the founding countries of the Central American Initiative for Control of Chagas disease (IPCA) within the framework of the Special Meeting of the Health Sector of Central America (RESSCA), in 1997.

The Honduras National Program for Chagas disease in coordination with PAHO/WHO, JICA, CIDA, and other agencies has been increasing the coverage and quality of its actions:

- Since 1991, a 100% coverage of screening of blood for ***T. cruzi*** infection has been achieved in all the blood banks thanks to a compulsory blood screening law established in 1985.
- Blood samples were taken in 32,740 schoolchildren of 1,146 primary schools in 62 municipalities over the period of 2005-2006.
- In 2005, 28 521 houses were treated with insecticides in 1,092 localities in 51 municipalities.
- Endemic ***Rhodnius prolixus*** vector has been eliminated from 146 localities in 44 Municipalities.
- ***Triatoma dimidiata*** vector has been restricted to only 17% of the intradomiciliary areas and to 0.5% of the peridomiciliary areas where this species is recorded.

The Strategic Plan of Chagas disease 2003-2007 has set Honduras on the path for achieving the goal of elimination of the vector-borne and transfusion transmission of ***T. cruzi*** by year 2010.

Dengue

Dengue has epidemiological, social, and economic impact and constitutes a growing threat for Honduras. From year 2001 up to 2006 a total of 105,155 dengue cases were recorded. This included 6,528 cases of dengue hemorrhagic fever and 36 deaths.
In September 2004 a national strategy for dengue (EGI-Dengue Honduras) was launched with the creation of a dengue working group. Environmental sanitation is now being done at Municipal Governments level, and multidisciplinary intersectoral commissions have been created, such as the Commission of Environment, Regulation, Education, Promotion and Surveillance. In each of the departments the national strategy has been adapted to its local realities and to the available resources.
Additionally a sub-regional Workshop on Communication for behavioral impact (COMBI) for dengue control was held in 2003 where Honduras prepared a National COMBI Plan and trained a national multidisciplinary group. This plan has been only partially executed due to lack of full financing.

The country's poverty conditions, the migration of population from rural to urban areas, unstructured urban growth, inadequate housing, deficient water supply, low school attendence, low awareness of the diseases and of their transmission vectors are determinants that increase the risk of infections by neglected tropical diseases. These are the factors that need to be modified by an inter-sectorial and inter-institutional approach with rational utilization of international technical cooperation.

REGIONAL OFFICE FOR THE EASTERN MEDITERRANEAN

<To be inserted EMRO map and list of member states>

DRACUNCULIASIS

18 out of 21 member states of the WHO Eastern Mediterranean have been certified by the International Commission for the Certification of Dracunculiasis Eradication (ICCDE) as being free of dracunculiasis transmission. Four countries are still not certified. They are Afghanistan, Djibouti, Somalia and Sudan.

Selected country initiative

Sudan

Sudan is still endemic country with 81% of world-wide reported dracunculiasis cases. The northern states have interrupted disease transmission in 2003.Transmission occurs only in the south of the country. In the northern states of Sudan, only imported cases are registered. Sudan reported significantly higher number of cases of dracunculiasis in 2006 compared to 2005 as a result of improved accessibility to areas of southern Sudan, establishment of infrastructure of the guinea worm eradication programme in newly discovered endemic areas and provision of logistical support to activate surveillance and monthly reporting of cases.

Implementation of the eradication interventions, including the case containment strategy and provision of safe sources of drinking water, were improved in main endemic areas in Southern Sudan. The Regional Office in cooperation with the Carter Center was supporting the national Guinea Worm Eradication Programme to strengthen its surveillance and interventions activities. Particularly, WHO supported the organization of refresher training courses for village volunteers in formerly endemic areas in 6 northern states. Support was provided for organization of special surveys in selected previously inaccessible areas in the southern states in Sudan. Surveillance activities included provision of advocacy materials to the communities, collection of data about availability of safe drinking water and carrying out rumors investigation. All rumors of dracunculiasis cases have been investigated and population of villages with identified dracunculiasis cases were covered with distribution of water filters for individual protection against dracunculiasis. In southern Sudan, surveillance and supervisory structures were carried out in 8 out of 10 states.

LEISHMANIASIS

EMRO countries concentrate a high prevalence of cutaneous leishmaniasis (CL) world wide, such as Afghanistan, Iran, Pakistan, Saudi Arabia, Sudan and Syria. Although CL is not a killing disease, it causes a high stigma mainly in women and implies a high disease burden in these areas (approximately 12% of the total 2.3 billion DALYs caused

by leishmaniasis). A major CL epidemic is occurring in Afghanistan which is spreading the disease to neighboring countries like Pakistan (Singh and Balochistan province). On the other hand, visceral leishmaniasis (VL) is also prevalent in some EMRO countries, mainly Sudan - the second largest foci in the world.

Selected initiatives

In Sudan, the highest VL endemic states are Gedaref and Upper Nile, in both of them WHO has contributed with a coherent support in regards case management and epidemiological surveillance, after a donation of the Spanish government (AECI).
The epidemic of CL in Kabul, Afghanistan, has been also a matter of special interest for WHO where 11 300 patients got treatment during 2006 thanks to a donation of the Belgium government. A KAP study was also a key activity to better understand the transmission and impact of CL in Kabul.

Capacity building and guiding

Morocco is endemic of CL and VL. In particular CL has been spreading due to "*Leishmania tropica"* in the hills close to the Atlas, with more than 1000 cases a year for several consecutive years. In order to contain the spread of the disease, 45 health workers were trained either in microscopy skills or program management.
Interactive maps reviewing 25 years of scientific literature in regards human leishmaniasis, sandfly vectors and reservoir hosts have been finished for all EMRO countries bordering the Mediterranean sea.

LEPROSY

Tremendous progress in reducing the burden of leprosy through the widespread implementation of multidrug therapy (MDT) was achieved in the endemic Member States of the Eastern Mediterranean Region. The number of registered cases in the Region has significantly decreased from 74,892 cases in 1985 to 23,219 cases in 1995 and to 4,024 cases by the end of 2005. Accordingly, the prevalence of leprosy per 10,000 population at the Regional level decreased from 1.58 in 1985 to 0.12 in 2005.

All member states reached the target of leprosy elimination as a public health problem at the country level.
The regional target to eliminate leprosy as a public health problem by 2005 at the sub-national level was achieved at provincial (state, governorate) levels and at the district level in the majority of endemic countries. The number of annually registered new leprosy cases decreased at the regional level from 5,565 cases in 2000 to 3,836 in 2005. Accordingly, the detection rate per 100,000 population decreased from 1.21 in 2000 to 0.8 in 2005.

Improved access to leprosy diagnosis and MDT drugs free of charge remain the cornerstone of the leprosy elimination strategy. The adherence to treatment of leprosy patients was significantly improved after introduction of MDT blister packs for adult and children patients with MB and PB leprosy. During 2000-2005, WHO supplied Member States on their request with free of charge 535,782 MB and 79,098PB adult blister packs and 42,440 MB and 22,960 PB child blister packs. In addition, Novartis has also donated

through WHO 14,000 tablets of 50 mg and 73,000 tablets of 100 mg clofazimine for the treatment of patients with severe leprosy reactions.

Integration of leprosy control programme into primary health system

The integration of leprosy control services within general health-care systems and the phasing out of vertical programmes are being carried out by national programmes based on country-specific local situations. WHO focused on strengthening national capacity on diagnosis and treatment of leprosy by supporting the organization of training courses for PHC staff, dermatologists, laboratory technicians, social workers and staff of non-governmental organizations. Support was provided for strengthening community awareness on leprosy through printing and distribution of health education materials, organization of meetings with community leaders and press media.

Capacity building in Egypt, Pakistan and Sudan

The Regional Office continued to assist the national programmes in Egypt, Pakistan and Sudan with strengthening national capacity on diagnosis and treatment of leprosy by supporting the organization of training courses for PHC staff, dermatologists, laboratory technicians, social workers and staff of the non-governmental organizations. Regular training of PHC staff and dermatologists in diagnosis of leprosy facilitated early diagnosis of cases and reference of them for MDT treatment to leprosy clinics. In addition, training was organized to social workers in provision of counseling and socio-economic rehabilitation to leprosy cases.

A regional meeting of national coordinators and partners on integrated leprosy control was organized by the Regional Office in June 2006 in Alexandria, Egypt to review progress in sustaining leprosy control activities, discuss approaches for integrated control within the existing health systems and discuss collaborative activities with partners. The meeting recognized the achievements made by individual national programmes in sustaining leprosy control services and emphasized the importance of continuing control activities in an integrated manner between all partners.
The national programmes continued efforts to sustain already made achievements in leprosy control and to maintain quality and coverage of cervices at affordable cost to the programme and the community. All leprosy clinics in Egypt at governorate level have been integrated with dermatology services.

National seminar in Morocco was held in May 2006 to discuss restructuring of the leprosy services into National Skin Disease Programme which will include control of other skin diseases.

Pakistan adopted strategies to maintain sustainability of the leprosy control programme by net-working with the national blindness and tuberculosis control programmes and integrated leprosy into basic dermatology in special action projects (skin camps) to cover all hyper-endemic areas.

LYMPHATIC FILARIASIS

WHO recommended strategy of mass drug administration (MDA) to bring down transmission of lymphatic filariasis was successfully applied in Egypt and Yemen with a

significant reduction in public health significance of the disease. Egypt was able to achieve elimination of LF in the majority of endemic areas with 5 rounds of annual application of combination of diethylcarbamazine (DEC) and albendazole tablets. The effect of MDA was measured by the most specific and sensitive parasitological and immunological methods. During 2006 MDA continued in some areas with less than 5 rounds and in areas where the criteria for stopping MDA has not been met yet. Yemen completed the fifth round of MDA using the ivermectin plus albendazole combination in all endemic areas. Mapping of lymphatic filariasis endemic areas in Sudan is in progress.

SCHISTOSOMIASIS AND SOIL TRANSMITTED HELMINTHES

Schistosome and Soil-transmitted helminths (STH) infest large populations in certain regions of the EMR with the most intense infections in children and the poor. In addition to causing much suffering and death, these infections contribute to perpetuating poverty through impaired cognitive development and growth of children, and decreased work capacity and productivity in adults. Control of these diseases is however possible using a simple Strategy based on repeated, regular treatment with (cheap and safe) single-dose anthelminthics of the highest risk group (school age children) that can be reached through the primary school health system or other ongoing health or education programmes. This is how many countries of the EMR totally interrupted transmission or reached now a low endemic-low morbidity status. Actually, Schistosome and STH infections remain a major public health problem only in Sudan and Yemen.
Two major different challenges are faced actually:
In the low endemic countries, the major difficulty is how to sustain the programmes by the maintenance of the same level of human resources and funding for the coming years , in order to avoid a disastrous and costly recrudescence, when schistosomiasis does not represent anymore a public health problem in these countries (Egypt, Saudi Arabia Syria, ,Morocco, Libya, Oman. How to avoid repetition of situations such as in Gezira State (Sudan), where the Blue Nile project resulted in an elimination of schistosomiasis in the end of the 80s and where the actual endemicity is among the highest in the world.
In the still high endemic countries (Sudan and Yemen) the challenge is to support the national control programmes of to adopt and properly implement the WHO strategy, ideally with integration into ongoing health and education initiatives and with the participation of other partners such as WFP and UNICEF, or others, as currently done in Afghanistan. In fact, the real difficulty is to ensure a regular sustainable system of drug delivery to the target population in these countries.

Action taken and results achieved:

Successful countrywide deworming campaign was continued in 2006 in Afghanistan, in 28 targeted provinces out of 34 thanks to sustained partnership with UNICEF and WFP and mebendazole drug donations.
In Egypt, The School Health Programme was expanded to cover eleven (Egypt is divided in 26 governorates) more Governorates of the country, (Dakahalia, Kalubyia, Sharkia, Kafr El Sheik, Gharbia, Monufeya, Ismailia, Damiatta, Fayum, Beni Suef and Rural Alexandria), in addition to Behera (the pilot phase area). This represent a coverage of almost half (30 millions) of the total population of the country and about two thirds of those living in rural areas.

Monitoring surveys following Praziquantel distribution confirmed further lowering of *S. mansoni* overall prevalence in 12 endemic districts to 1.5% and the persistence at very low level 0.2%, of *S. heamatobium*, in only one district of the Governorate of Beni Suef). Prevalence and intensity of infection with Soil-Transmitted Helminths (STH) has also been reduced in the six endemic districts, with three of these districts not reporting anymore moderate/high intensity of infection.
In regard to human fascioliasis endemic foci have been identified in rural Alexandria, Behera, Gharbia and Kalubyia and control activities directed toward specific areas are ongoing as planned, using triclabendazole provided by WHO.

In Saudi Arabia, evidence from surveys and long period surveillance confirmed in 2006 that local transmission of schistosomiasis ceased in some regions (Tabuk, Hail, Al Jouf, Riyadh , Najran) with no reports of locally contracted schistosomiasis. In other regions (Maka Al Mukaramah, Al Medina AL- Manawarah, Al Taif, and Jeddah) only not locally contracted cases were reported. Jazan region didn't register cases in 2006 but remains at high risk because of the movement of people to and from Yemen and the common wadis that introduce snails into Jazan during floods. All these factors threatens the elimination of schistosomiasis from that region where snail control is now the highest priority and requires to be sustained until effective control measures are implemented along the border from Yemen side.
The re-emergence of new cases in Albaha is probably due to the demobilization that occurred following the achievement of the elimination targets that were reached in 2005 in this area and emphasizes the need to sustain activities for a long period following morbidity and prevalence control, by an intensified program to detect and control the few remaining cases and potential remaining transmission spots .

Sudan was supported to initiate the implementation of mass treatment in Gezira. In 2006, the programme was implemented in 2 very high endemic localities (48% prevalence) and was successful in one locality where almost 300 000 tablets of praziquantel were distributed, ensuring the coverage of 11 983 persons, representing 60% of the targeted population. Less coverage (30%) in another locality was explained by insufficient preparedness of population to accept the drug and weak health education to counter a rumor that the drug has severe side effects.

In the southern part of Sudan, insecurity problems affected the implementation of the schistosomiasis programme. However, WHO staff in the field successfully integrated deworming activities and Vitamin A distribution with other programmes especially within the polio program (that have been re-located in Juba). 2 million tablets of albendazole provided by WHO, were distributed during national immunization days (NIDs).

In 2006, in Yemen, WHO supported the assessment of the programme and revealed several weaknesses, such as the use of costly surveys followed by treatment of individual detected cases instead of expanding community based mass treatment, in addition to the use of a quality uncontrolled praziquantel. Moreover, at periphery level there is a tendency to set up new independent programmes instead of using already existing systems in schools or mobilising partnerships with partners working on the same targets. This probably explain why, despite many commendable efforts in this country and investments (local and from WHO) there is not yet any visible impact on morbidity or prevalence.

TRYPANOSOMIASIS OR SLEEPING SICKNESS *:*

Sudan was the 3rd most endemic country of human African trypanosomiasis. HAT requires high skilled personnel to be diagnosed (early stages are pauci-symptomatic) and require invasive techniques (lumbar punction) to be staged (2). Only highly toxic injectable drugs are available for its treatment and require long treatment courses in available hospitals. The existence of more than 20% of resistance with Melarsoprol in some areas in South Sudan constitutes an additional difficulty. The alternative being to use eflornithine which requires 56 perfusions in 2 weeks for each patient.

The initiative launched by WHO, in 2002, in partnrership with Aventis (now sanofi-aventis) and NGOs led the control the disease with very low prevalence (less than 1%) achieved in almost all foci . This was realized thanks to the presence of permanent WHO staff in the field ensuring the free distribution of all necessary diagnostic tools and drugs, training, rehabilitation of treatment centres and laboratories, coordinating between implementing partners and tackling cross-boarder issues. However, the situation was fragile and during the last 2 years, the principal challenge was how to sustain a quality comprehensive programme, when some important specialised NGO partners started to pull out, and how to replace or ensure the transition to nationals to build up a sustained control system. The other challenge was how to generalize/upgrade all treatment facilities for the newer 2 weeks treatment (DFMO) regimens, as still few facilities continue to use the very old 3 week more toxic regimen of Melarsoprol.
Another important challenge will remain that is the need to ensure , in southern Sudan, laboratory capacities to ensure continuous adequate follow up of *Trypanososma* drug resistance .

Action taken and results achieved:

The WHO team succeeded to sustain the situation under control in all foci of (Juba ,Kajo-Kegi. Yei County, Tambura and Ezo County) except in Maridi and Mundri, two counties of West Equatoria State where the situation deteriorated following the departure of MSF-France . The stage 2 treatment is no longer available locally and patients need to travel far to seek for treatment. In this transition period and to ensure sustainability of control , The WHO team continued to focus on training , rehabilitation and coordination including across boarders.
As for the last four years Southern Sudan has acquired a large experience in the use of eflornithine (DFMO), as first line treatment for late stage (stage 2) of sleeping sickness, with a lower fatality rate compared to the classical old drug (melarsoprol), it started sharing this expertise in an 12 days International Training Course (in Yei, Central Equatoria State) on the use of DFMO as first line with participants from Angola, Democratic Republic of Congo, Republic of Congo and Ivory Coast (10 participants in total). The aim was to help these endemic countries to adopt eflornithine in their treatment protocols.
Another major event organized and sponsored by WHO in 2006, was the Fourth Sleeping Sickness Regional Meeting in Juba where the Trypanosomiasis Control policy on diagnosis and treatment for the disease was revised in coordination with boarder countries (DRC, Congo, Uganda)
In regard to Tropical Diseases Surveillance, WHO staff initiated the work with the MOH regarding the development and implementation of a permanent surveillance system. A working group was established and several meetings have been held to discuss the “Integrated Disease Surveillance and Responses” model used in several African countries in Southern Sudan with a particular emphasis on neglected tropical disease.

WHO is also in process of supporting the rehabilitation of a national reference laboratory for Tropical Diseases in Juba. In 2006, all the equipment was ordered for the laboratory to be usable hopefully in 2007, to verify outbreaks, as Kala azar reference DAT laboratory confirmation and for Trypanosomiasis and TB. WHO also supported in 2006 a 3-month laboratory training for 3 Sudanese laboratory technicians in AMREF Kenya so there will be Sudanese local staff to manage the laboratory once rehabilitated.

LEISHMANIASIS

Different leishmaniasis entities occur in the Region, each requiring a specific adapted control strategy for prevention. Anthroponotic visceral leishmaniasis (AVL) due to *Leishmania (L.) donovani* regularly causes severe outbreaks in Sudan with thousands of deaths. Anthroponotic cutaneous leishmaniasis (ACL) caused by *L. tropica* is a major problem in the Region, particularly in the Syrian Arab Republic in some urban foci in Afghanistan , Iran and Pakistan(. Zoonotic cutaneous leishmaniasis (ZCL) outbreaks due to L. major continue to appear periodically in desert zones (in Egypt, Islamic Republic of Iran, Iraq, Jordan, Libyan Arab Jamahiriya, Morocco, Pakistan, Syrian Arab Republic and Tunisia). Most of the countries except Sudan, Somalia and Afghanistan , have satisfactory surveillance/case management systems.
The major challenges regarding these diseases are the absence of evidence based validated strategies that allow to prevent or interrupt transmission and the high cost of the diagnostic and treatment tools.

Action taken and results achieved:

In 2006, WHO focused on Sudan where hopefully, a cyclic decrease of the yearly incidence of cases was noted, reflecting probably the absence of large displacement of populations and less introduction of naïve non immunized populations in transmission foci.
Adequate operational support was provided to respond to limited leishmaniasis outbreaks , in addition to capacity building activities and rehabilitation to increase treatment facilities. In 2006, Seven partners were supplied with free drugs and diagnostic tools (dipstick or DAT reagents) .
More interesting in 2006, was the introduction by Local WHO staff of an innovative community based approach to control visceral Leishmaniasis. The health worker manual specific for Southern Sudan on community kala-azar (KA) health education which was developed by WHO in 2005 was updated and copies produced for distribution for trainings organized with the implementing partners. The field training on community awareness was combined with a refresher laboratory training concentrating on the use of the dipstick procedure in the diagnosis of kala-azar in peripheral health units, and was delivered to NGOs (local and international) partners' staff. Two PHC units were rehabilitated as new treatment facilities, located in Dingkar and Mandeng , to better refer patients more appropriately and in a timely fashion.

WHO also contributed to operational support (provision of drugs, diagnostic tools) and capacity building in several affected countries of the EMR. and on the development of new approaches for the surveillance, prevention and control through operational research

ZOONOSIS:

Brucellosis and hydatidosis and Rabies remain the major Zoonotic diseases in EMR with a considerable economic impact in veterinary and public health sectors. All these zoonoses require specific actions/programmes on animals (animal vaccination, test and slaughter, dog deworming etc…) to be prevented or eliminated . This is not happening in the majority of the EMR countries because of the absence of comprehensive multisectoral programmes, with products produced by different sectors contributing to the same expected result. This is the major challenge. Currently in the EMR countries, pathogen surveillance in animals is usually the responsibility of government departments of agriculture. Its quality varies greatly among countries and typically (in all countries without exceptions) does not include wildlife. In addition, priority diseases supported and reported are those of food animals and more particularly those that affect international trade.

Action taken and results achieved:

The year 2006, was marked by the adhesion of new member states, who positively responded to a call from RD EMRO, to participate in the Mediterranean Zoonoses Control Programme , as requested by the resolution adopted in RC50. WHO EMRO also pursued close coordination with the MZCP, particularly in regard to the organization of common training workshops and meetings with the aim to strengthen partnership with regional and international organizations, such as the World Organization for Animal Health (OIE), and the United Nations Food and Agriculture Organization, in order to enhance control activities in the region.
The support of WHO to countries, included ,capacity building in surveillance and management of human cases in selected zoonoses programmes, such as rabies in Pakistan and in Yemen. Rabies continues to constitute a major threat , with cases reported in 2006 in especially in Pakistan, Afghanistan, Yemen, parts of Iran and Palestine. Considerable funds continue to be spent by most of the countries of EMR and WHO-EMRO, in post exposure treatment of humans to reduce mortality. Morocco was supported to assess its actual epidemiological status in regard to hydatidosis and the control programme was revised.
Despite support from WHO and other sources, Pakistan hasn't yet achieved the shift from the production of old sheep-brain vaccines to tissue culture vaccines.

REGIONAL OFFICE FOR SOUTH-EAST ASIA

<To be inserted SEARO map and list of member states>

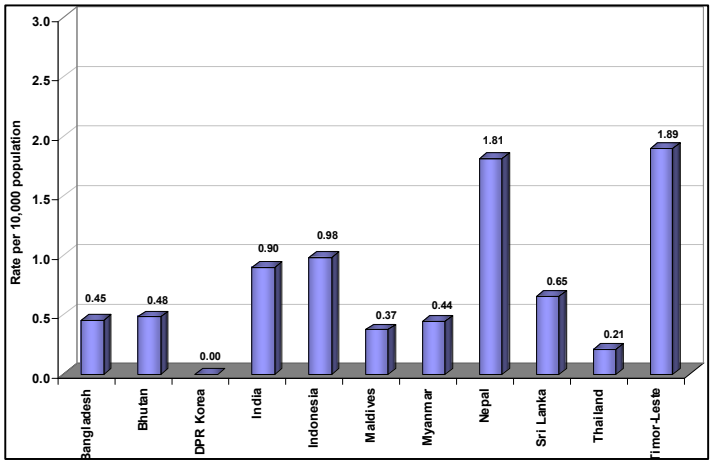
The South East Asia Region accounts for a disproportionate burden of neglected tropical diseases such as leprosy, lymphatic filariasis, kala-azar and yaws. In 2005, the Region accounted for 68% of the globally reported new leprosy cases, 65% of the population globally at risk of lymphatic filariasis, 20% of the globally reported kala-azar cases and about 5000 new cases of yaws.
"Regional Initiatives for Tropical Diseases targeted for Eradication/Elimination" was an agenda item in 59th Meeting of Regional Committee held in Dhaka-Bangladesh in August 2006. The Regional Committee passed a resolution calling on Member States to give high priority to the targeted diseases and increase the allocation of resources.

The Second Meeting of Partners on Tropical Diseases targeted for elimination/eradication was successfully held in Jakarta-Indonesia in February 2007, with participation from representatives from 21 partner agencies and senior health officials from 7 Member States. The meeting was co-sponsored by German Development Cooperation (BMZ/GTZ), Global Alliance for Elimination of Lymphatic Filariasis (GAELF) and the Sasakawa Memorial Health Foundation-Japan and was able to generate greater interest among the participating agencies and a willingness for increased support for elimination/eradication efforts.

LEPROSY

9 out of the 11 member States have attained the goal of elimination of leprosy as a public health problem, leaving only 2 countries – Nepal and Timor-Leste to achieve the goal. The Regional prevalence declined from 0.86/10,000 population in 2005 to 0.79/10,000 population in 2006. In 2006, the prevalence of leprosy has stabilized below 0.9/10,000 population in India, which traditionally accounted for the highest leprosy burden, globally and regionally.
Of the nearly 15 million cases cured globally with MDT so far, about 12.8 million were from the South-East Asia Region, more than 11.8 million of them from India. Thus the South-East Asia Region and India have made significant contribution to the reduction in the global leprosy burden.

Figure 9. Prevalence Rate per 10,000 population in SEAR countries, September 2006

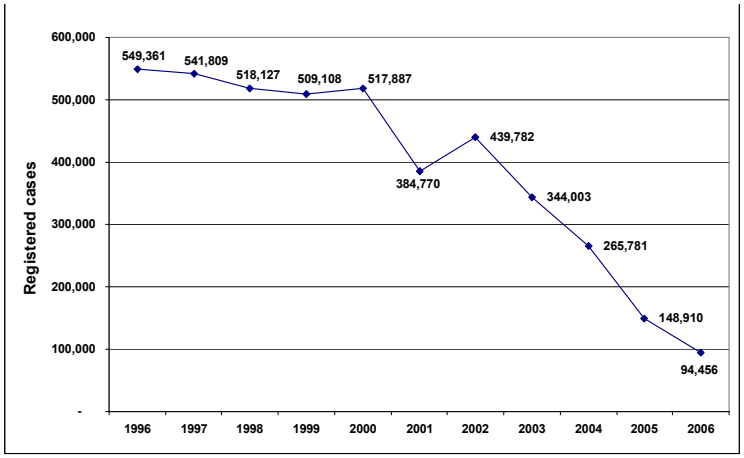


All countries continued to accord high priority to leprosy elimination activities and sustained leprosy services within the general health system. In 2006, the annual new case detections reduced in most countries, compared to 2005.

Selected country initiatives & success stories

The number cases of leprosy on treatment at the end of 2006 in India dips below 100,000 for the first time.

Figure 10. Leprosy prevalence in India 1996-2006



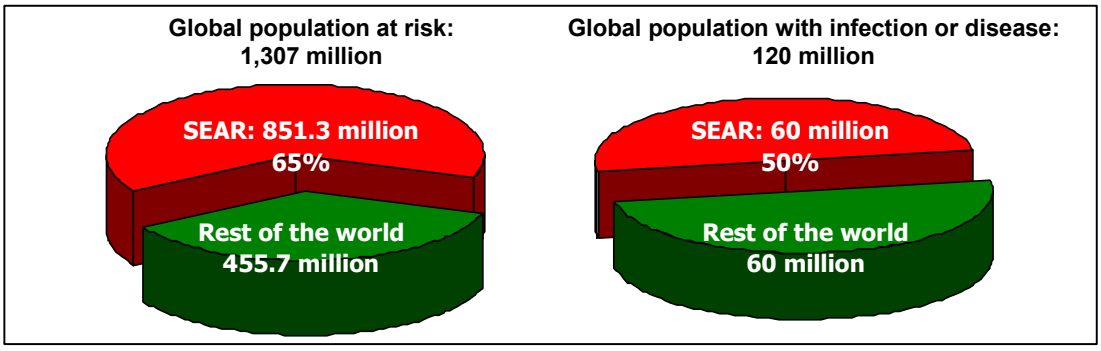
Indonesia, Myanmar and Maldives

Leprosy Elimination Monitoring (LEM) Exercises were conducted in Indonesia and Myanmar and an External Evaluation conducted in Maldives, in order to assess the progress of leprosy elimination and quality of leprosy services, including quality and supply of MDT drugs.

LYMPHATIC FILARIASIS (LF)

The South East Asia Region aims to achieve the Elimination goal by 2015 so that the period between 2015-2020 can be utilized for final mop-up and verification exercises.
The Region accounts for the highest burden of population at risk of LF with nearly 850 million of 1.3 billion globally at risk. In addition, 50% of the 120 million people with clinical manifestations also reside in South East Asia.

Figure 11. The Global and Regional populations at risk and with infection or disease



Mapping for endemicity has been completed in all countries except Indonesia which is expected to complete the exercise in 2007.

During 2006, around 100 million people at risk of LF were covered with Mass Drug Administration (MDA) with DEC + albendazole in the 9 LF endemic countries of SEAR. Maldives, Sri Lanka and Thailand covered their entire endemic population in 2006. Timor-Leste is planning to cover the entire endemic population in 2007. Sri Lanka completed 5 rounds of MDA, the first country in the region to achieve this milestone.

In July 2006, India, the country with the highest burden of LF globally and regionally, announced a policy change and decided to adopt the WHO-recommended 2-drug regimen of DEC + albendazole for annual MDA. This will result in rapid scale-up of MDA in the country and in the region. In 2005, India covered only 17 million people in 6 districts with the 2-drug regimen on a pilot basis and administered DEC alone to about 537 million people.

The meeting of National LF Programme Managers of the Region was held in Jakarta-Indonesia 05-07 July 2006. The meeting of South East Asia RPRG was held on 27-28 April 2006 at Jakarta.

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Selected country initiatives & success stories

Sri Lanka

Sri Lanka's LF Elimination Programme: 5 rounds of MDA are completed with high coverage

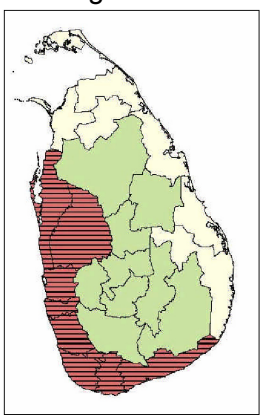


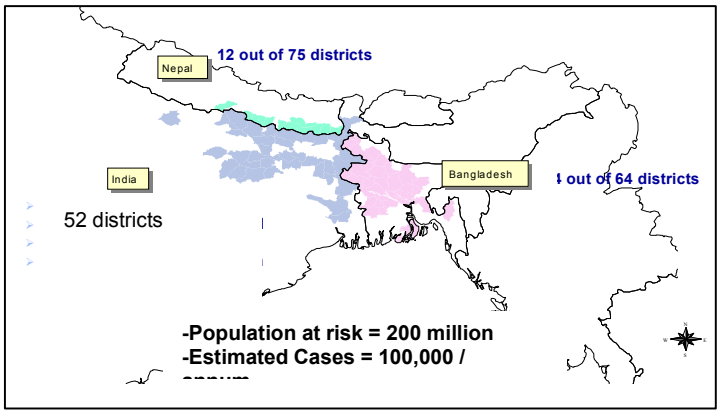
Figure 12. Sri Lankan nurse distributing albendazole and DEC

- 9.8 million people at risk of LF completed 5 rounds of MDA 2-drug regimen in 2006;
- High drug coverage >90% of the eligible population;
- Microfilaraemia rate now reduced to 0.03%;
- Used COMBI and social mobilization to enhance compliance;
- Strong partnerships between Sri Lanka Government, WHO, GlaxoSmithKline, FIFA (Federation for International Football Association), Lymphatic Filariasis Support centre-Liverpool, UK and local NGOs.

VISCERAL LEISHMANIASIS (KALA AZAR)

Kala azar caused by parasitic protozoa *Leishmania donovani* and transmitted by the bite of infected female sandfly, *Phlebotomus argentipes* is predominantly a disease of the poorest of the poor.
In South East Asia Region, the disease is limited to 98 districts in three countries - Bangladesh, India and Nepal, putting about 200 million people at risk (Figure 1). Estimates indicate about 300,000 new cases per year in the Region, which is 8 times more than reported..
During 2005 the reported cases in Bangladesh, India and Nepal were 6891, 28,751 and 1564 respectively, with Case Fatality rates of 0.28%, 0.54% and 1.34% respectively.

Map 7. Kala-azar endemic areas in the SEA Region, 2006



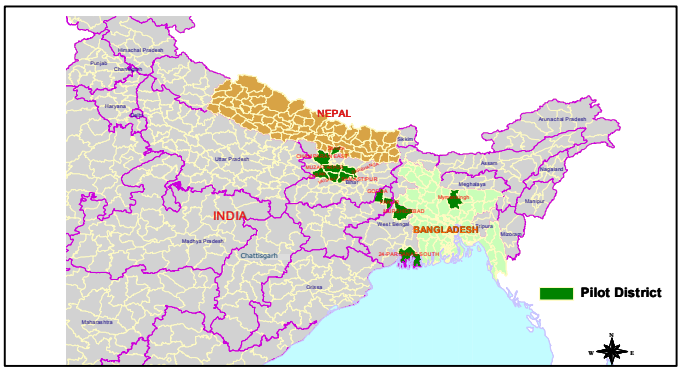
There is a large gap between estimated cases and the reported cases. Treatment of kala azar is hampered by the high cost of drugs. The course of oral drug miltefosine is for a period of 28 days, hence high level of patient compliance is required to prevent drug resistance. Strict pharmacovigilance including pregnancy register is required since miltefosine is potentially teratogenic drug. There is a risk of ongoing transmission through Post Kala-azar Dermal Leishmaniasis (PKDL). Control of PKDL is very challenging since patients with PKDL have no signs or discomfort.

Following the Memorandum of Understanding(MoU) signed by the Ministers of Health of Bangladesh, India and Nepal in May 2005, the political commitment in the three affected countries is high and national funds have been allocated for the elimination programme. The 3 countries have agreed for joint efforts to eliminate kala-azar as a public health problem by 2015.

The Regional Strategic Plan was endorsed at a meeting of partners held in India in August 2005. Following the endorsement of the Regional Strategic Plan, the programme managers from Bangladesh, India and Nepal prepared the national operational plans for implementation in 2006. These were then consolidated into a project document. The plan includes a road map for implementation and has identified the resource gaps. Map 8 shows the pilot districts under implementation in 2006.

WHO has established a Regional Technical Advisory Group (RTAG) to provide technical guidance on the elimination of kala azar and will assist the countries in the development of technical/operational guidelines.

Map 8. Implementation of kala-azar elimination in 2006



YAWS

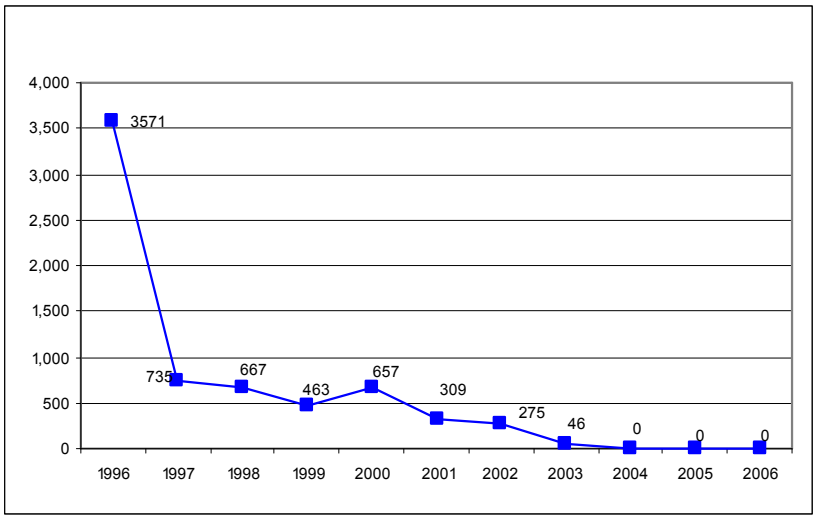
Yaws is immensely amenable to eradication because it can be easily diagnosed on clinical grounds by the health care workers and is fully cured with a single injection of long acting penicillin. The disease is geographically confined to small localized foci, mainly in remote areas. Historically, use of the strategy of active case finding and prompt treatment both of cases as well as family contacts have led to disease eradication. Ultimately, Yaws eradication would contribute to reduction of poverty and empowerment of a traditional society as nations strive towards achievement of MDGs and at least strive towards equitable access to basic health and sanitary conditions.

Based on these arguments, WHO/SEARO has declared Yaws eradication a priority for SEA Region and an achievable goal with the target date of 2012.

India

Due to intensified efforts to eradicate yaws, no cases have been reported in India since 2004. The country formally declared Elimination of yaws in September 2006 and is now conducting sero-surveys in under-5 children and is aiming at Eradication by 2010.

Figure 13. Yaws case detection in India, 1996-2006



In ***Indonesia***, every year about 4000 cases are reported from 8-13 of the 30 provinces. The number cases provisionally reported in 2006 is around 6,000. Four provinces – East Nusa Tenggara, South East Sulewesi, Papua and Maluku account for 95% of the annually reported cases There has been a slow-down in the programme implementation in the last few years, mainly due to resource constraints. Efforts have to be directed towards policy support and greater attention to the effective implementation and strengthening of the programme.

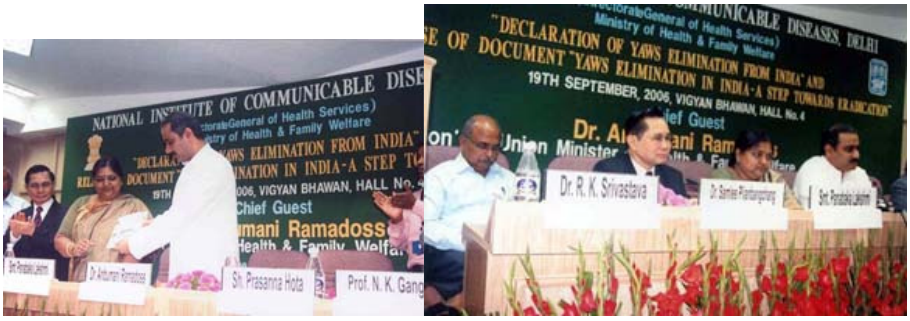
In ***Timor Leste,*** yaws is considered to be endemic in 6 of the 13 districts. Reliable data is not available from the country. An integrated approach is planned, combining elimination of lymphatic filariasis, control of soil transmitted helminths and eradication of yaws. Such a programme synergy is a novel approach that needs to be supported.

Regional Activities 2006

To take the eradication mission forward, WHO has prepared a framework of the Regional Strategic Plan and a draft advocacy document for resource mobilization. This Regional Strategic Plan 2006-2010 was finalized at a meeting in Bali, Indonesia in July 2006 and the framework of National Strategic Plans for Indonesia and Timor-Leste developed.

The declaration of elimination of yaws in India has motivated Indonesia and Timor-Leste to intensify efforts towards implementation of Yaws eradication activities. Both countries need additional resources and technical assistance in order to achieve Yaws eradication by 2010.

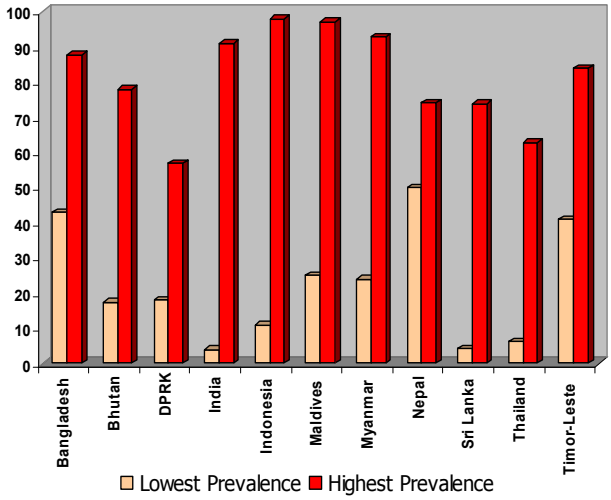
India declares Elimination of Yaws



SOIL-TRANSMITTED HELMINTHIASIS

Soil transmitted Helminthiasis is a public health problem in all the 11 countries in the South East Asia Region. An estimated 500 million of the 1.5 billion people living in these countries are believed to be infected while approximately 669,000 DALYs are lost per year. Fig. 1shows the range of STH prevalence rates in the Region.The commonest infections include Roundworm (*Ascaris lumbricoides*), Whipworm (*Trichuris trichiura)* and Hookworm *(Necator americanus).*

Figure 14. Range of STH prevalence rates in the Region



In order to achieve the goal of reducing morbidity and mortality caused by soil-transmitted helminthiasis by 50% and to achieve a target of regular treatment to at least 75% of all school-age children at risk by 2010, several mass deworming programmes have been initiated in the region

a) Targeting school-age children through school based approaches integrated with school health programmes;

b) Targeting pre-school children through Integration with Vitamin A supplementation programme;

c) Targeting pregnant and other women through Ante natal care programmes;

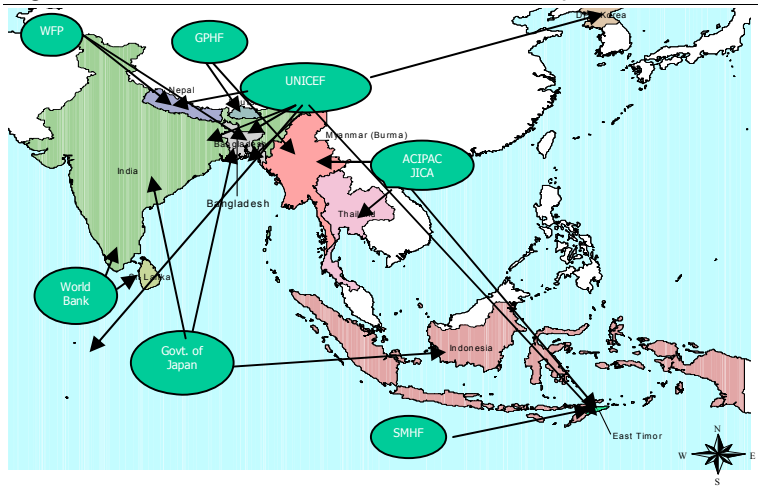
d) Integrating deworming with Mass Drug Administration for LF elimination;

All countries have appointed a national focal point for STH, while 10 countries have national deworming policies. Bhutan, Maldives, Sri Lanka, and Thailand are targeting entire high risk school-age population. Bangladesh, Myanmar, Nepal and Timor-Leste have plans to expand school deworming programmes in phases to cover entire population at risk. DPR Korea, India and Indonesia have prepared their program plans.

Most countries in the Region have developed innovative approaches for integration with other activities to rapidly scale up and provide cost-effective interventions:

- School health programmes (Sri Lanka & Thailand)
- Vitamin A supplementation programme (Bangladesh & Nepal)
- IMCI (Bangladesh, Bhutan, Myanmar, Nepal & Timor-Leste)
- Maternal and Child Health (MCH) programmes (Sri Lanka)
- Mass drug administration (MDA) for elimination of Lymphatic Filariasis
- Tsunami health interventions (Indonesia, Maldives, Sri Lanka)

Figure 15. WHO–SEARO recruits and networks partners for STH control / elimination



REGIONAL OFFICE FOR THE WESTERN PACIFIC

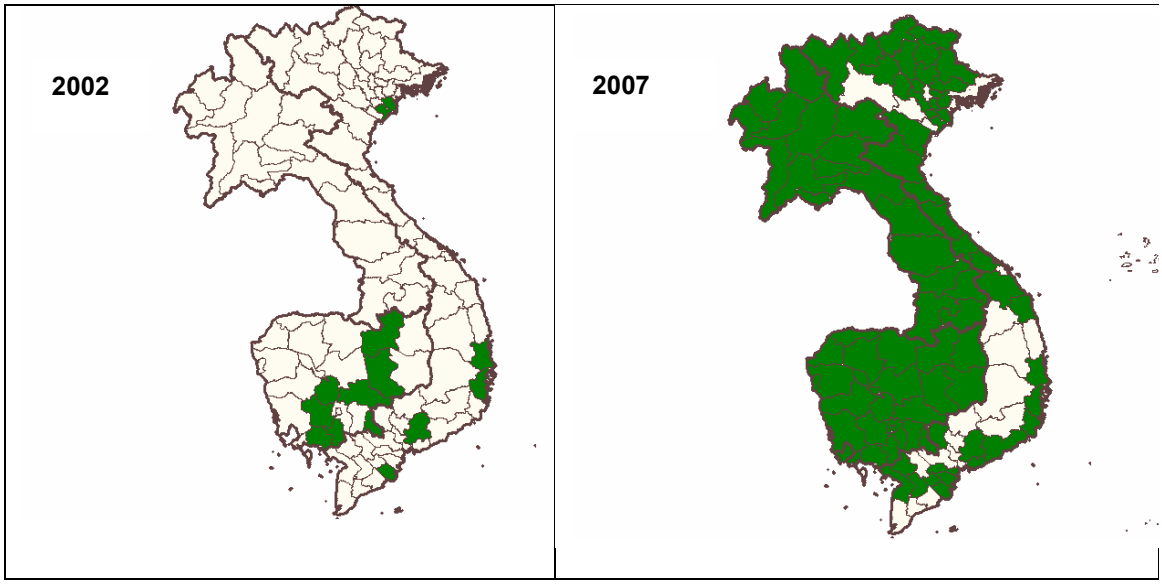
<to be inserted WPRO map and list of member states>

Control programmes for Neglected Tropical Diseases (NTD) are currently being scaled up in the Region. Institutional donors such as Asian Development Bank as well as the United Nations Children's Fund are paying more attention to NTD and a strong political commitment is developing in several countries. Most countries have established control programmes directed by managers with internationally recognized capacity. The mass media and several publications in scientific journals have documented the achievements of control methods developed by countries in this Region. A fruitful exchange of visits and experiences is taking place within the Region (i.e. visit of the delegation from the National Institute of Malariology, Parasitology and Entomology of Vietnam to Cambodia during the school deworming campaign, and the exchange visit of Cambodian and Lao schistosomiasis control programme managers in border areas endemic for schistosomiasis in the two countries).

SOIL-TRANSMITTED HELMINTHIASES

The control of soil-transmitted helminths (STH) is being scaled up in the entire Region (Figure 1); several countries progressed towards the WHO deworming target of regular coverage of 75% of school-age children. The pre-school children risk group is also progressively being covered.

Map 9. Comparison of the coverage of school health deworming programmes in some countries of the Greater Mekong Subregion in 2002 and 2007



Selected country activities & success stories

Cambodia

In 2004, Cambodia was the first country in the world to achieve regular deworming of more than 75% of all school-age children. The control programme is covering 2.8 million children twice a year and is receiving political and financial support from the government: the 2006 campaign was launched by H.E. Mam Bun Heng Secretary of State (Ministry of Health) and covered by television, newspaper and electronic media. The involvement of high-level personalities of the MoH is indicative of the attention given by the government and a positive indication for the long-term sustainability of the activities.
In addition, approximately 1.3 million pre-school children are covered by deworming during the Vitamin A distribution and outreach campaign and the MoH is also planning coverage for women of child-bearing age.

China

Following the results of the national baseline survey conducted in 2004, distribution of mass chemotherapy is planned in 2008 in all counties where the infection rate of STH is over 30%. In 2007, pilot activities (mass distribution of albendazole) for STH control started in 8 counties (1.9 million people covered). In 5 counties albendazole distribution is been implemented for 3 years. The total number of people that will be covered in 2007 is 3 million.

Lao PDR

The country expects to reach national coverage of school deworming in April- May 2007 (the target is approximately 1 million children). Financial support of the programme is granted by the Luxembourg government until 2008 (see Figure 1). Pilot activities to reach pre-school children are being developed.

Pacific Islands

WHO provided technical support and supported the procurement of deworming tablets in Fiji, Solomon Islands, Tuvalu and Vanuatu. The intention is to support the distribution of albendazole to school-age children in Pacific islands that have achieved 5 consecutive years of albendazole and DEC distribution for the control of lymphatic filariasis (LF) and maintain, in this way the health gains obtained in addition to the lymphatic filariasis elimination.

The Philippines

STH are widely transmitted in the country: a recent survey in pre-school children demonstrated prevalence between 49 and 92%. The prevalence in school-age children is probably higher. Approximately 10 million of children are dewormed every year in the Philippines as part of the mass distribution of anthelminthics for the control of LF. Another half million were dewormed with support from UNICEF. In order to reach the WHO target, an additional 9 million tablets will be necessary.
An innovative health education tool, the “Urbani Box”, jointly developed with WPRO HPR/DHP, is currently pilot-tested in approximately 130 schools in the Philippines

Viet Nam

Viet Nam is on the way to attain the global target of covering 75% of schoolchildren with deworming (6 million schoolchildren will be treated in 2007). The vitamin A and deworming campaign will start in June 2007 and cover 1.8 million pre-school children. In addition, WHO is conducting a study in collaboration with the University of Melbourne in

Yen Bay Province, covering 250 000 women of child bearing age, to evaluate the cost-effectiveness of weekly iron supplementation and deworming intervention in this group at risk.

SCHISTOSOMIASIS

Schistosomiasis is not transmitted in the Pacific island countries. The only schistosome species transmitted in the WPR are *Schistosoma japonicum* and *S. mekongi*. The transmission of *S. japonicum* is confined to China, where schistosomiasis was a major problem in eight provinces, and to parts of the Philippines. *S. mekongi* is transmitted in areas along the Mekong River in southern Lao PDR and two adjacent provinces in Cambodia.

China

In 2004, China re-defined schistosomiasis control as one of its priorities in communicable disease control, together with control of HIV/AIDS and tuberculosis. The country has adapted endemic classifications and its national control guidelines to the current situation, and has set ambitious targets for the next two 5-year periods. It is aimed to have transmission under control by 2008, and to stop transmission by 2015.

The Ministry of Health has embarked on a 5-year project for schistosomiasis control covering the provinces of Anhui, Hubei, Hunan, Jiangsu and Jiangxi, in the lake region, and Sichuan and Yunnan in mountainous regions. Mass chemotherapy with praziquantel is delivered though the primary health care system and is provided free of charge to the populations at risk. In the lake region, control activities are combining distribution of praziquantel with environmental modification and replacement of buffaloes with tractors in agriculture.

Cambodia

No schistosomiasis cases were reported in 2006 in Cambodia. This result is particularly relevant since schistosomiasis before was transmitted at a very high level (prevalence of infection between 73% and 88%) in the two provinces of Kratie and Stung Treng, where approximately 80 000 individuals were at risk of infection. Severe morbidity and mortality due to the infection were also very common in the area. In 1994, the Ministry of Health of Cambodia started applying universal chemotherapy with praziquantel. The coverage of the programme was between 62% and 86% for 8 years.

The experience in Cambodia demonstrates that with political commitment, parasitic disease control is achievable even in situation of minimal resources. The programme represents a successful model for other developing countries.

Lao PDR

Schistosomiasis is transmitted in Champasak province at the border with Cambodia. The present epidemiological situation for schistosomiasis in the province is very similar to the one of Cambodia in 1996, with prevalence over 60% and several severe cases of severe morbidity and mortality. As a result of repeated mass drug administration campaign Schistosomiasis was under control in Khong island during the 90's. The present high prevalence is the result of the discontinuation of such campaigns for more than 7 years. Praziquantel in Lao PDR is now available for distribution in 2007. Funds are being sought to support a programme similar to the one successfully implemented in Cambodia.

LYMPHATIC FILARIASIS

Countries and areas in the WPR are making steady progress towards the global goal of the elimination of lymphatic filariasis by 2020. For the "Mekong-Plus" countries, China is in the final process of verifying interruption of transmission that should be complete in early 2007; the Republic of Korea should be also ready for verification for the interruption of transmission towards the end of 2007; Brunei needs to carry some final surveys to verify that old pockets of transmission are no longer active before starting the verification process; while Lao PDR is preparing to implement the final mapping surveys. Cambodia, Malaysia, Viet Nam and the Philippines are actively carrying out annual mass drug administration (MDA) campaigns that have achieved high levels of coverage.

Concerning the Pacific countries and areas, PacELF continues to coordinate LF elimination. All endemic countries except Papua New Guinea have completed five rounds of MDA and are at the critical stage of confirming that prevalence has dropped to below the 1% target level. A short term consultant was recruited in October 2006 to critically review the PacELF situation; he also provided technical support to the new PacELF team leader for reviewing the strategy for this sub-region as well as for further developing the survey methodology to assess elimination.

Table 13. MDA for LF elimination in WPRO/PacELF

Countries		Individuals targeted by MDA for LF elimination *	Number of annual MDA rounds completed	Mean coverage
Countries that completed 5 round MDA	American Samoa	100 % of eligible population (63,308)	6	61%
	Cook Islands	100 % of eligible population (13,572)	6	81%
	Fiji	100 % of eligible population (831,263)	5	68% (mean of 4 rounds)
	French Polynesia	100 % of eligible population (258,709)	7	97%
	Kiribati	100 % of eligible population (93,706)	5	61%
	Niue	100 % of eligible population (1,591)	5	88%
	Samoa	100 % of eligible population (185,234)	6	72%
	Tonga	100 % of eligible population (99,298)	5 rounds of nationwide MDA were completed. A target MDA was conducted in 2006 in Niuatoputapu (coverage 97%).	85% (mean of 5 rounds)
	Tuvalu	100 % of eligible population (9,652)	5	74%
	Vanuatu	100 % of eligible population (221,417)	5	85%
	Wallis and Futuna	100 % of eligible population (15,260)	5	60%

Countries that are conducting MDA	Papua New Guinea	100 % of eligible population (6,187,108)	1 province completed 2 rounds	84% (mean of 1st round)
	Marshall Islands	Residents of Mejit island (population 416, 1999 census) and Ailuk atoll (513, 1999 census)	3 rounds were completed both in Mejit and Ailuk.	73%
	Federated States of Micronesia	Residents of Satawal island (population 531, 2002 census)	3	>90% (mean of 2 rounds)

* Population estimates for 2006 are provided in parentheses. For Marshall Islands (Mrjit and Ailuk) and FSM (Satawal), population is based on census.

Table14. MDA for LF elimination in WPR/Mekong-Plus

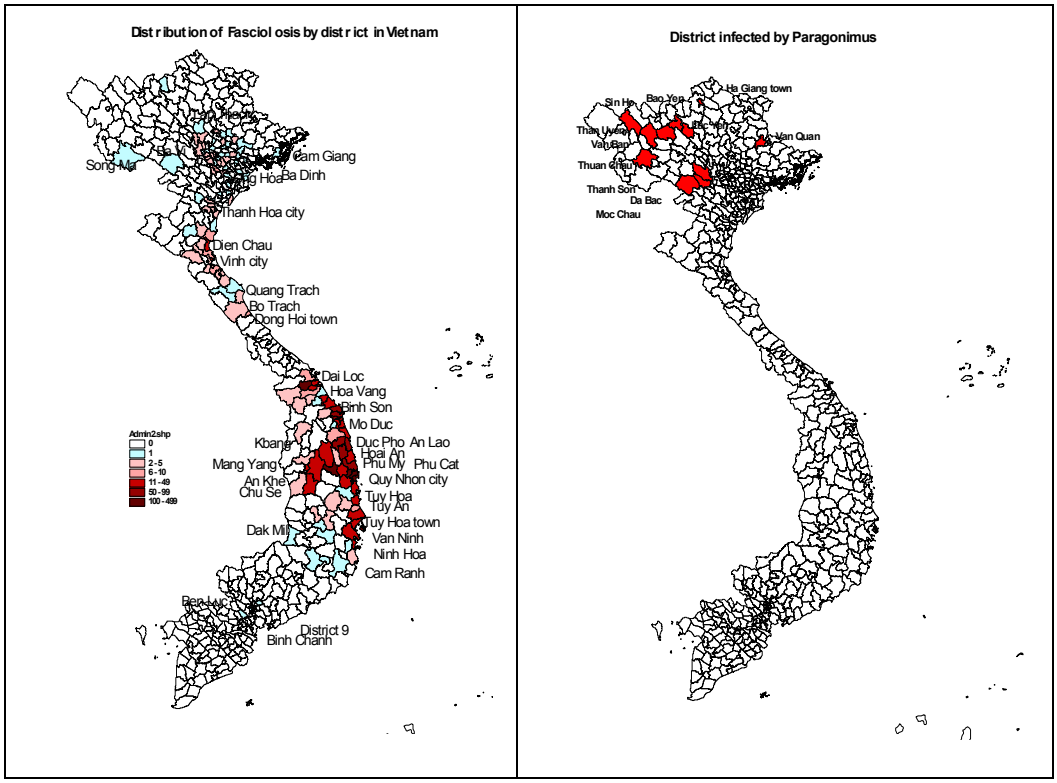
Country		Individuals targeted by MDA for LF elimination	Number of annual MDA rounds completed	Mean coverage
Countries that are conducting MDA	Cambodia	435 000	2	71.3%
	Malaysia	1 170 000	2	67%
	Viet Nam	671 000	4 districts completed 3 2 districts completed 4	>80 %
	Philippines	21 000 000	2-5	68%

FOOD BORNE TREMATODES

After the workshop conducted in Hanoi in 2003, the control of these neglected diseases received new input. Cambodia is completing a mapping of the major FBT with the support of researchers from the Korean Association for Health Promotion (KAHP). The Lao PDR has already completed mapping and discovered areas of high prevalence of *Opisthorchis* infections; it will start the distribution of praziquantel in Champassak province in 2007, combining the control of schistosomiasis and opistorchiasis which both are intensively transmitted in the province.

Viet Nam completed the mapping exercise, and developed control plans for each of the transmitted food borne trematodes. Personnel of the peripheral health units have been trained and control activities started: 10 000 tablets of triclabendazole, the drug of choice for fascioliasis, have been donated by WHO and distributed to the district hospitals in the areas where fascioliasis cases were reported in the past. Praziquantel will be distributed in April 2007 to the entire population of 11 districts in North Vietnam where paragonimiasis cases have been identified.

Map 10. Food-borne trematodes in Viet Nam. a) Fascioliasis and b) Pragonimiasis

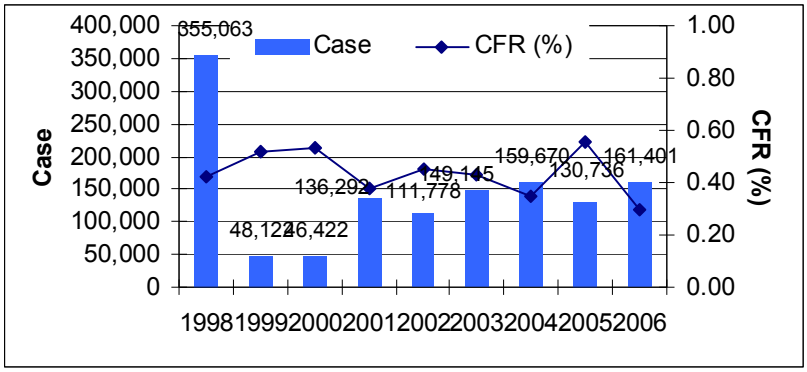


DENGUE

Regional overview of the dengue situation

Dengue incidence data was available from 19 countries up to 2006. After a particularly severe outbreak in 1998 throughout the Region, with 355,063 cases and 1,497 deaths, the number of cases and deaths in 1999 decreased sharply (48,122 cases and 255 deaths) and remained low in 2000 (46,422 cases and 249 deaths). Those figures were almost three times higher in 2001 and remained high throughout the period from 2001 to 2006. However, the overall case fatality rate (CFR) has remained low, under 1.00%, since 1998.

Figure 16. Number of dengue cases and case fatality sate from the countries that have data available, WHO Western Pacific Region, 1998-2006 [7]

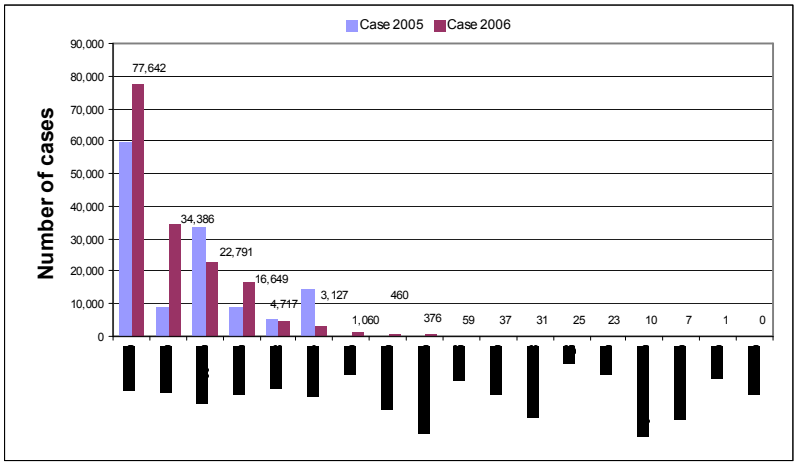


[7] *CFR is calculated based on total number of cases (DF+DHF+DSS)*

Regional Activities:

In February 2006, WHO Regional Office for the Western Pacific (WPRO) in collaboration with WHO Regional Office for South-East Asia (SEARO) and WHO Headquarter convened a two-day meeting of partners on dengue prevention and control in Asia-Pacific in Chiang Mai, Thailand. The objective was to explore the possible concerted action towards preventing dengue epidemics. The meeting came up with an agreement on setting up a partnership for dengue prevention and control in the Asia-Pacific region. The follow-up meeting in February 2007 in Singapore of the Core Group for Asia-Pacific Dengue Partnership (APDP) finalized the Strategic Framework and discussed the working mechanisms of the APDP. Participants included dengue experts and core members from the Western Pacific: Singapore and Tonga and South-East Asia: India and Thailand. Also, a draft Strategic Plan for Dengue Prevention and Control in Asia-Pacific for the period 2007-2015) was reviewed and discussed.
WPRO continues to have limited resources for dengue control and prevention, but continues to support surveillance (both routine and rumor surveillance) and outbreak response, a number of major community-based vector control activities esp. using the COMBI (Communication for Behavioural Impact) methodology, and improvement of case-management, whilst seeking to establish a better funding base.
Thanks to the continued regional advocacy for dengue, the Asian Development Bank (ADB) is now providing funds for neglected diseases control including dengue to the governments of three Mekong countries (Laos, Cambodia, and Viet Nam) within a comprehensive communicable disease control project. The cooperation between WPRO and ADB within this project enables WPRO to fund two intercountry staff: one dengue (based in Cambodia) and one helminth control expert (based in Laos). In addition, USAID has significantly increase their funding for dengue control both at regional and country levels (Cambodia, Laos, Viet Nam).
Most of the reported cases in 2006 were from Viet Nam, Malaysia, Philippines[8] and Cambodia (Figure 4). In Singapore there was a significant drop in the number of cases in 2006 compared to 2005 (14,229 and 3,127, respectively). Among the Pacific Island countries, Cook Islands, French Polynesia, Fiji, Palau and New Caledonia were facing the recurrence of dengue outbreaks.

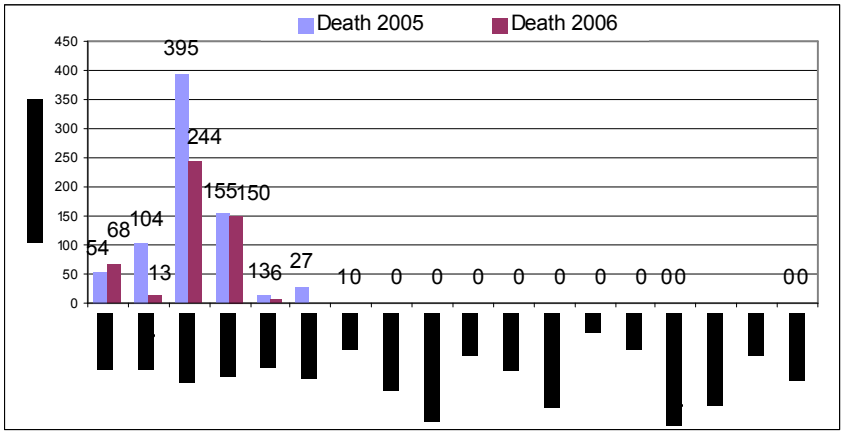
Figure 17. Number of dengue cases in the countries that have data available, WHO Western Pacific Region, 2005 and 2006.



[8] *Figure from the Philippines is 10 months only*

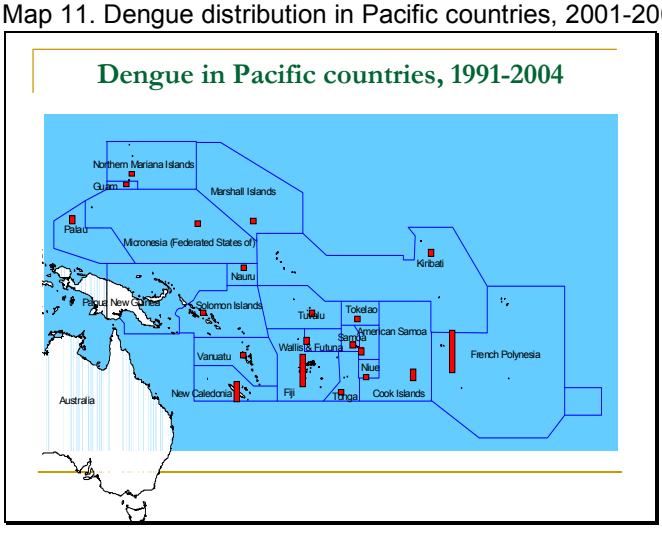
In 2006, there were a total of 481 deaths compared to 749 deaths in 2005. The Philippines had the highest number of deaths (244), followed by Cambodia (150), Vietnam (68), Malaysia (13) and Lao PDR (6). Although the overall regional CFR in 2006 was only 0.3%, the CFR in the Philippines and Cambodia were high (1.07 and 0.9, respectively) while in Viet Nam, Malaysia and Laos the CFR was low (0.09, 0.04 and 0.09 respectively). No deaths were reported in Singapore.

Figure 18 Number of deaths in the countries that have data available, WHO Western Pacific Regional, 2005 and 2006[9]



The Pacific Island countries are specifically vulnerable to dengue epidemics (Figure 6), and the impact on the health of its populations and on the economy is massive. An economic analysis has been conducted in two countries. An epidemic of dengue virus serotype-1 has affected the Pacific in the past years and is ongoing. Early recognition of and response to outbreaks are a major challenge.

Map 11. Dengue distribution in Pacific countries, 2001-2004.



[9] *The 2005-2006 data are from both official and rumour sources. They will be verified and updated when WPRO received all data submitted by member states via official request;*

New approaches

Several new approaches for dengue prevention and control are being explored in dengue endemic countries of the Western Pacific region. In vector control, insecticide-treated covers are being tested in Cambodia and Laos, where people use concrete jars to store water for domestic purposes. It is hoped that this control method can be expanded to other countries with similar habitats for *Aedes aegypti* breeding. Larviciding with high coverage levels targeted seasonally to domestic water storage containers in large urban areas of Cambodia has proven effective and cost-effective over 5 years. Results have been evaluated and are being published. Biological control using *Mesocyclops* is being used successfully in Viet Nam in pilot areas where it is accepted by the population. The COMBI approach has been used in Malaysia and Lao PDR; it has the potential to bring together different control methodologies based on an assessment of the main breeding sites and the risk behaviours of the target population. However, it requires capacity strengthening in research and communication as well as significant funding.

Country initiatives & success story

Singapore
The government of Singapore has applied “pro-active" actions in an attempt to eliminate dengue mosquito breeding sites with the involvement of communities and different sectors and organizations. This will have undoubtedly contributed to the reduction of reported cases from 14,229 in 2005 to 3,127 in 2006 but other epidemiological factors will also have influenced the decline.

PART 3. KEY CHALLENGES FOR EMPOWERING PEOPLE LEFT BEHIND TO CATCH UP:

We have demonstrated success, but there are two important remaining areas of neglect we need to address.
The first challenge is to generate the resources needed to greatly expand population coverage. In this case, success needs to breed much more success.
Given the power of available interventions to prevent many of these diseases, intensified delivery may be the best route to a better life for many millions of people.
Second, we greatly need research and development for innovative new tools, particularly for diseases like African trypanosomiasis, leishmaniasis, and Buruli ulcer. While drug donation partnerships offer great hope, it should be noted that many of these drugs were already on the market for other indications.

Key challenges to be addressed

1. Provision of treatment and other interventions free of charge to communities in need;
Although the treatment costs per patient for some diseases may be minimal, the total costs can be significant given the large numbers affected by neglected tropical diseases. Deforming and debilitating diseases may be given high priority by affected populations, but impoverished communities cannot afford to cover the costs and their voices are often unheard by politicians or policy-makers. External support is needed to provide the required interventions in a package to communities at risk at no cost, along the lines of childhood immunization.

2. A drug delivery system to cover the whole at-risk population;
Interruption of transmission through mass drug administration (MDA) requires high coverage. Often, however, at-risk populations are not reached as they live in remote areas or do not attend schools and are thus missed during school-based campaigns. Specific strategies need to be developed to reach these groups and to cover the whole at-risk population.

3. Delivery of multi-intervention packages;
Innovative approaches to add preventive chemotherapy to existing health services should be developed. A synergistic approach will streamline operational activities, improve efficiencies and ensure that the priority health needs of communities are comprehensively met. Packages would need to be offered as a flexible menu of options that can be tailored to the local disease situation and adapted to community priorities. WHO has a key role to play in putting together technically sound options.

4. Urgent development of diagnostic tools, drugs and pesticides;
The development of new tools for some neglected tropical diseases belonging to the tool-deficient
category is being addressed within the framework of public–private partnerships. However, there is an urgent need for these tools to be made available and also accessible to populations in need.

5. Production of more effective drugs and insecticides;
There remains a need to develop new drugs, even for the tool-ready category of diseases, in the event of development of drug resistance with the large-scale MDA programmes.

6. Promotion of integrated vector management (IVM);
Efforts are needed to strengthen the infrastructure for integrated vector management, embed it in
existing health services and link it with other sectors (agriculture, irrigation, environment, public
works, information and education).

7. Quantification of the burden of neglected tropical diseases among neglected populations;
Mapping of disease distribution and populations at risk will allow better targeting of MDA and other interventions and ensure the efficient use of resources.

8. Early protection of children
Many of the neglected tropical diseases start early in life, placing children at risk during a period of intense physical and intellectual development and further increasing their vulnerability to permanent impairment of their human potential. Similar to the principle of immunization, whereby children receive early protection against a set of common infections according to a schedule of vaccinations and boosters, children can also be protected against of set of tropical diseases and their severe manifestations through a schedule of early systematic treatments that continue into adult age and make use of routine systems and services to ensure sustainability.

9. Post-implementation, surveillance and monitoring.
Surveillance and monitoring of diseases are fundamental for preserving hard-won successes against neglected tropical diseases. Post-implementation surveillance and constant monitoring activities should be carried out. Interventions need to be sustained over a sufficient time to produce long-term impact and protect new generations from infection.

10. Intensifying control of diseases alongside pro-poor policies (advocating an intersectoral, interprogrammatic approach to control of neglected tropical diseases;)
The fight against neglected tropical diseases should form an integral part of pro-poor policies. The introduction of basic public health measures, such as primary health care services and health education, and improved access to clean water and sanitation, would significantly reduce the burden of a number of diseases.

Part 4. A FRAMEWORK FOR ACTION: GLOBAL PLAN TO COMBAT NEGLECTED TROPICAL DISEASES 2008-2015

Over the past decades, the World Health Organization (WHO), together with its partners, has set a framework for action, Global plan to combat neglected tropical diseases 2008-2015. Specific aims and targets are defined for the period of 2008-2015 in line with MDG and 9 strategic areas have been identified

The strategy encompasses the following components:
- a multi-pronged approach;
- focus on populations and interventions rather than specific diseases;
- use of a quasi-immunization model for preventive chemotherapy;
- introduction of innovative tools for disease control;
- a multi-disease, intersectoral and interprogrammatic approach.

Neglected tropical diseases belonging to the “tool-ready” category are those for which powerful and inexpensive control tools are currently available and well- developed implementation strategies are immediately feasible. Large-scale use of safe and single-dose drugs (preventive chemotherapy) makes their control, prevention and even elimination more feasible than ever before.

The major tasks for control of the tool-ready diseases are to expand coverage of packaged preventive chemotherapy interventions, to access the hard-to-reach populations at-risk with innovative delivery systems and to continue regular treatment.

Current control strategies for the “tool-deficient” diseases rely on costly and difficult-to-manage tools. For most of those diseases, early detection and treatment are vital to avoid irreversible disability or death. There is urgent need to develop simple, safe and cost-effective tools and make them accessible. Such innovative tools will drastically alter the existing control strategies.

The opportunities presented by an intersectoral and inter programmatic approach and its successful use in many parts of the globe shows that such a synergistic approach improves cost-effectiveness and ensures that all necessary treatments are simultaneously delivered to neglected populations, which nearly always suffer from several overlapping diseases linked to poverty.

The Global Plan aims at translating this strategy into reality.

Principles for action

The Global Plan has been formulated according to the following key principles:
- the right to health;
- existing health systems as a setting for interventions;
- a coordinated response by the health system;
- integration and equity;
- intensified control of diseases alongside pro-poor policies.

Goal and targets, 2008–2015

The goal of the Global Plan is to prevent, control, eliminate or eradicate NTDs.
The targets for the plan period 2008–2015 are:

- To eliminate or eradicate those diseases targeted in resolutions of the World Health Assembly and regional committees.
- To reduce significantly the burden of other tool-ready diseases through current interventions.
- To ensure that interventions with new innovative approaches are available, promoted and accessible for tool-deficient diseases.

Strategic areas for action

The Global Plan comprises nine strategic areas, each of which proposes a series of actions to meet specific targets during 2008–2015. The strategic areas are:
1. Assessment of the burden of NTDs and zoonotic diseases
2. Integrated approach and multi-intervention packages for disease control
3. Strengthening health-care systems and capacity building
4. Evidence for advocacy
5. Ensuring timely and free access to diagnostic and preventive tools and high-quality drugs
6. Access to innovation
7. Strengthening IVM
8. Partnership and resource mobilization
9. Promoting an intersectoral, interprogrammatic approach to control of neglected tropical diseases.

Framework for implementation, monitoring and evaluation

Prior to 2008, a committee will be set up for successful implementation and operationalization of the Global Plan.
Member States, WHO collaborating centres for neglected tropical diseases, other relevant international partners and the WHO secretariat will be part of a steering committee that monitors implementation and reviews progress.

Each WHO Regional Office will develop its own action plans which will fully reflect the Global plan to combat neglected tropical diseases 2008-2015 focusing on its prioritized diseases.

ACRONYMS AND ABBREVIATIONS

AECI	Spanish Agency for International Cooperation
AFRO	WHO Regional Office for Africa
AIDS	Acquired immunodeficiency syndrome
AMRO	WHO Regional Office for the Americas
BU	Buruli ulcer
CD	Communicable Diseases, or Communicable Diseases Unit of PAHO
CDC	Centers for Disease Control and Prevention, Atlanta, USA
CL	Cutaneous leishmaniasis
DEC	Diethlycarbamazine
DNDI	Drugs for Neglected Diseases Initiative
EMRO	WHO Regional Office for the Eastern Mediterranean
FAO	Food and Agriculture Organization of the United Nations
HAT	Human African Trypanosomiasis
HIV	Human immunodeficiency virus
IVM	Integrated vector management
LAC	Latin America and the Caribbean
LF	Lymphatic filariasis
LGA	Local Government Area
MDA	Mass drug administration
MDT	Multidrug therapy for leprosy
MOH	Ministry of Health
MSF	Médecins Sans Frontières
MZCP	Mediterranean Zoonoses Control Programme
ND	Neglected diseases
NID	National immunization day
NTDs	Neglected Tropical Diseases
OEPA	Onchocerciasis Elimination Program for the Americas
PAHEF	Pan American Health and Education Foundation.
PAHO	Pan American Health Organization.
PATTEC	Pan African Tsetse and Trypanosomiasis Eradication Campaign
PCC	Program Coordinating Committee of OEPA
PELF	Programme to Eliminate Lymphatic Filariasis
PRG	Program review group for LF
SAFE	Surgery, Antibiotics, Facial hygiene and Environmental improvement for trachoma
SEARO	WHO Regional Office for South-East Asia
STH	Soil-transmitted Helminths
TB	Tuberculosis
TDR	WHO Special Program for Research and Training in Tropical Disease
UN	United Nations
UNEP	United Nations Environment Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VBD	Vector-borne diseases
VL	Visceral leishmaniasis
WHA	World Health Assembly
WHO	World Health Organization
WFP	World Food Programme
WPRO	WHO Regional Office for the Western Pacific

ANNEXES

Annex 1. Selected neglected tropical diseases: description and global burden
Annex 2. WHO recommended anthelminthic medicines for use in preventive chemotherapy

Annex 1. Selected neglected tropical diseases: description and global burden.

Buruli ulcer

Buruli ulcer is a severe skin disorder caused by *Mycobacterium ulcerans*. Left untreated, the disease progresses to massive destruction of the skin and, in some cases, of bone, eyes and other tissues. Permanent disabilities occur in an estimated 25% of cases. Limb amputations may be needed to save a patient's life. These problems are compounded by the dramatic recent resurgence of the disease, particularly in parts of west Africa. About 50000 cases of Buruli ulcer has been reported from 30 countries mainly in Africa.

Chagas disease

Chagas disease is a parasitic disease resulting from the bite and subsequent defecation with faeces containing the infective stage of this protozoan parasite of the triatomine bug, or "kissing bug" in rural areas and periurban slums throughout Latin America. Transfusion of infected blood is a second significant mode of transmission. Chronic infection, which usually begins in childhood, irreversibly damages the heart, oesophagus, colon and peripheral nervous system in later life. Patients with severe chronic disease become progressively ill and ultimately die, usually from heart failure and often early in adult life. It is endemic in 21 countries, with 16–18 million persons infected and 100 million people at risk.

Dengue and dengue haemorrhagic fever

Dengue is a mosquito-borne viral infection found in tropical and subtropical regions around the world.

Some 2500 million people – two fifths of the world's population – in more than 100 countries are now at risk from dengue. There may be 50 million dengue infections worldwide every year. South-east Asia and the Western Pacific are most seriously affected.

Dengue haemorrhagic fever is a potentially deadly complication. It is characterized by high fever, haemorrhagic phenomena – often with enlargement of the liver – and, in severe cases, circulatory failure. Today, dengue haemorrhagic fever affects most Asian countries and has become a leading cause of hospitalization and death among children in several of these countries. Dengue is also widespread in several parts of Latin America and the Caribbean.

Dracunculiasis (Guinea-worm)

Dracunculiasis (guinea-worm disease) is caused by the parasitic worm Dracunculus medinensis or "guinea-worm".

No medicines are currently available to prevent or heal this parasitic disease – the only disease exclusively associated with unsafe drinking-water. Systematic filtering of drinking water is effective to eliminate the disease: 168 countries and territories are certified free of guinea-worm transmission.

In 2006, only 10674 new cases of dracunculiasis were reported worldwide; 96% of those are concentrated in Ghana, Mali and Sudan.

Human African trypanosomiasis (Sleeping sickness)

Sleeping sickness threatens 3 millions of people in 36 countries of sub-Saharan Africa.

Spread by the bite of the tsetse fly, the disease flourishes in impoverished rural parts of Africa.

Symptoms in the initial phase of the illness, when treatment has the greatest chance of success, are often mild or nonspecific. However, patients frequently present for treatment when the disease is already far advanced, more complex treatment is needed and the chances of success are jeopardized. Untreated, sleeping sickness is invariably fatal. Death follows prolonged agony.

In 2006, WHO estimated that the disease affects some 70 000 people.

Leprosy

Leprosy is a chronic disease caused by the bacillus Mycobacterium leprae. M. leprae multiplies very slowly and the incubation period of the disease is about five years. Symptoms can take as long as 20 years to appear. Leprosy mainly affects the skin and nerves; if untreated, there can be

progressive and permanent damage to the skin, nerves, limbs and eyes. Throughout history, the afflicted have often been ostracized by their communities and families. However, leprosy is not highly infectious and is readily curable. The availability of a highly effective cure – multidrug therapy – led to the vision of a world without leprosy. Today, 116 out of 122 endemic countries have eliminated leprosy as a public health problem.
Global registered prevalence of leprosy at the beginning of 2006 was 219 826 cases. It is still endemic in Brazil, Democratic Republic of Congo, Madagascar, Mozambique, Nepal, and United Republic of Tanzania.

Leishmaniasis

Leishmaniasis is a parasitic protozoal disease transmitted by the bite of the sand fly and threatens 350 million men, women and children in 88 countries around the world.
This disease has a wide range of clinical symptoms. Visceral leishmaniasis, which attacks the internal organs, is the most severe form. Left untreated, it is usually fatal within two years. The cutaneous form usually causes ulcers on the face, arms and legs. Far more devastating is the mucocutaneous form, which invades the mucous membranes of the upper respiratory tract, causing gross mutilation as it destroys the soft tissues of the nose, mouth and throat.
The sixth form, recidivans cutaneous leishmaniasis, is a relapsing form that appears after treatment. WHO estimates that 12 million people are currently infected, and around 1.5 million to 2 million new infections occur each year.

Lymphatic filariasis

Lymphatic filariasis, or elephantiasis, remains silent for a long time after infection that is mostly acquired in childhood. The disease is transmitted by mosquitoes that bite infected humans. The worms lodge in the lymphatic system, the network of nodes and vessels that maintain the delicate fluid balance between the tissues and blood, and are an essential component for the body's immune defence system. The worst symptoms of the chronic disease generally appear in adults, and in men more often than in women: damage to the lymphatic system, kidneys, arms, legs or (especially in men) genitals causes significant pain, lost productivity on a huge scale and discrimination.
Over 120 million people are currently infected and around 1.3 billion people in more than 80 countries are at risk of infection. One third of the people infected with the disease live in India, one third in Africa and the remainder in South Asia, the Pacific and the Americas.

Onchocerciasis

Onchocerciasis, or river blindness, is a parasitic disease caused by a filarial worm that is transmitted to humans through the bites of black flies that breed in fast-flowing rivers. The disease causes severe visual impairment, including permanent blindness, and can shorten the life expectancy of its victims by up to 15 years. Other devastating effects of onchocerciasis are skin nodules and onchocercal skin disease characterized by skin lesions (severe itching, dermatitis, depigmentation, etc.). Severe itching alone is estimated to account for 60% of the disease burden.
More than 100 million people are at risk of infection and some 37 million people are estimated to be infected. Over 99% of those affected live in Africa.

Soil-transmitted helminthiasis

"Helminth" is the technical word for a worm. Soil-transmitted helminths are also known in many places simply as common intestinal worms.
A person infected with soil-transmitted helminths has parasite eggs in his or her faeces. In areas where there is no latrine system, the soil (and water) around the village or community becomes contaminated with faeces containing worm eggs. The symptoms of soil-transmitted helminth infections, which are nonspecific and become evident only when the infection is particularly severe, include nausea, tiredness, abdominal pain and loss of appetite. Worm infections aggravate malnutrition and amplify rates of anaemia. Approximately 1.6 billion – one sixth of the world's population – is at risk of infection.

Schistosomiasis

Schistosomiasis, one form of which is also known as bilharziasis, is a parasitic disease that leads to chronic ill health.

Humans become infected when they come into contact with contaminated water. A child who has suffered persistent and heavy infections is likely to have chronic, irreversible diseases such as liver fibrosis, cancer of the bladder or kidney failure, later in life.

An estimated 70 million people with urinary schistosomiasis in Africa currently suffer from bloody urine, indicating damage of the bladder and urinary tract. Forms of schistosomiasis also occur in parts of South-East Asia and Latin America and the Caribbean.

Yaws

Yaws is a contagious, nonvenereal, treponemal infection in humans that presents mainly in children younger than 15 years. Peak incidence occurs in children aged 6–10 years. In the majority of patients, yaws remains limited to the skin, but early bone and joint involvement can occur. Although yaws lesions disappear spontaneously, secondary bacterial infections and scarring are common complications.

After 5–10 years, 10% of untreated patients develop destructive lesions involving bone, cartilage, skin, and soft tissue, similar to those seen in tertiary syphilis. In contrast to venereal syphilis, cardiovascular and neurological abnormalities almost never occur in patients with yaws.

Yaws is a significant public health problem in two countries of South-East Asia, and some countries in the African and Western Pacific regions. In South-East Asia, about 5000 cases are reported annually; 4000 in Indonesia and 1000 in Timor-Leste. India has recently eliminated the disease.

Annex 2. WHO recommended anthelminthic medicines for use in preventive chemotherapy

	Disease	ALB	MBD	DEC	IVM	PZQ	LEV[c]	PYR[c]
Target diseases for which a well-defined strategy is available	Ascariasis	✓	✓	–	(✓)	–	✓	✓
	Hookworm disease	✓	✓	–	–	–	✓	✓
	Lymphatic filariasis	✓	–	✓	✓	–	–	–
	Onchocerciasis	–	–	–	✓	–	–	–
	Schistosomiasis	–	–	–	–	✓	–	–
	Trichuriasis	✓	✓	–	(✓)	–	(✓)[d]	(✓)[d]
Target diseases for which a strategy is being developed	Clonorchiasis	–	–	–	–	✓	–	–
	Opisthorchiasis	–	–	–	–	✓	–	–
	Paragonimiasis	–	–	–	–	✓	–	–
	Strongyloidiasis	✓	(✓)	–	✓	–	–	–
	Taeniasis	–	–	–	–	✓ (up to 10 mg/kg)	–	–
Additional benefits	Cutaneous larva migrans (zoonotic ancylostomiasis)	✓	(✓)	–	(✓)	–	(✓)	(✓)
	Ectoparasitic infections (scabies and lice)	–	–	–	✓	–	–	–
	Enterobiasis	✓	✓	–	(✓)	–	(✓)	✓
	Intestinal trematodiases	–	–	–	–	✓	–	–
	Visceral larva migrans (toxocariasis)	–	–	✓	(✓)	–	–	–

Note: Drug names are given in full in the list of abbreviations at the front of the manual.

a. Prescribing information and contraindications are given in the WHO Model Formulary 2004 (13).

b. In this table, ✓ indicates drugs recommended by WHO for treatment of the relevant disease, and (✓) indicates drugs that are not recommended for treatment but that have a (suboptimal) effect against the disease.

c. At present, LEV and PYR do not have a prominent role in preventive chemotherapy as described in this manual. However, they remain useful drugs for the treatment of soil-transmitted helminthiasis, and since – unlike ALB and MBD – they do not belong to the benzimidazole group, they will be expected to contribute to the management of drug-resistant STH infections should that problem emerge.

d. LEV and PYR have only a limited effect on trichuriasis but, when used in combination with oxantel, PYR has an efficacy against trichuriasis comparable to that observed

with MBD (14).